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Science Fiction

Herbert **THE DOSADI EXPERIMENT** (Part 3)

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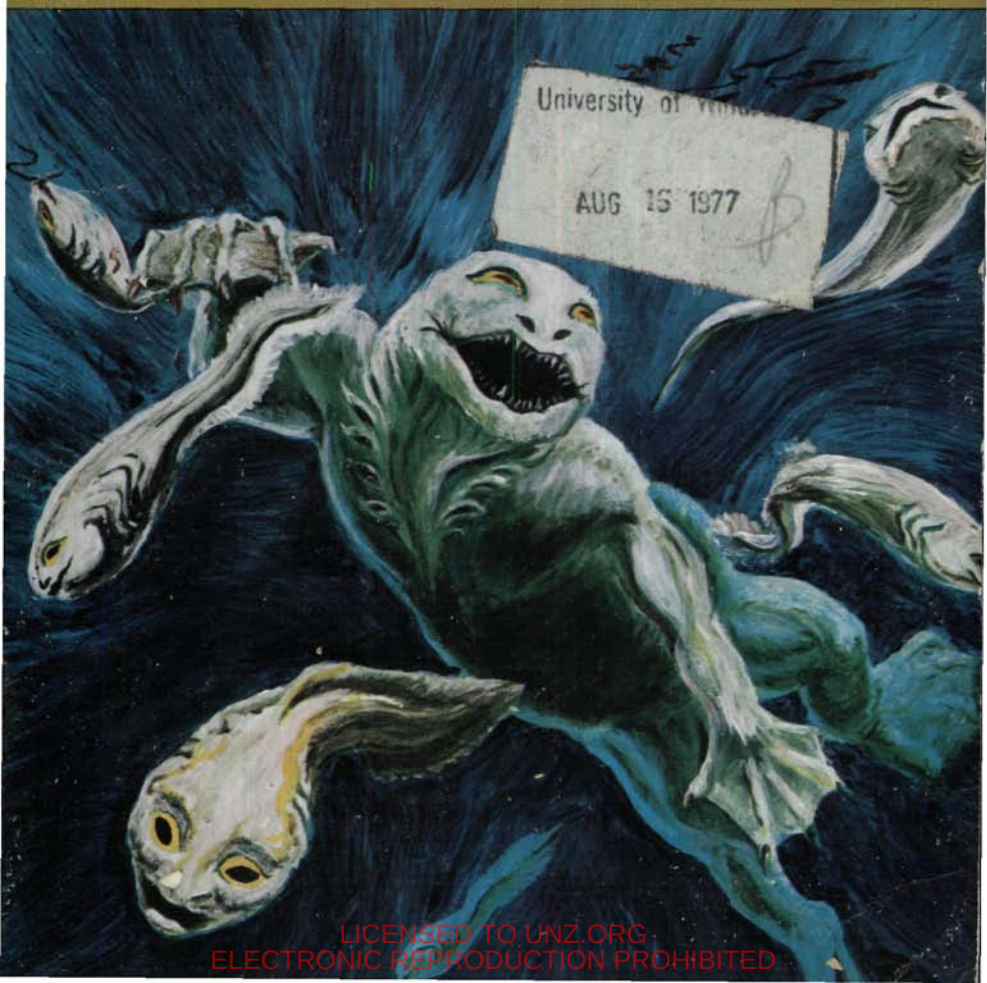

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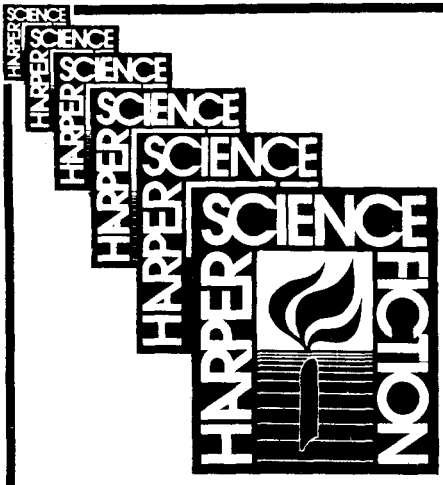

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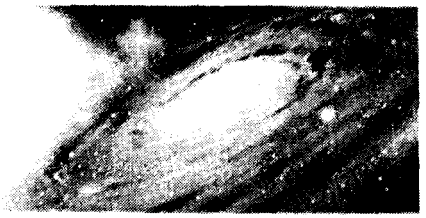

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VARIATIONS IN THE VISIBLE by H.C. Petley

SPECTRA OF CERTAIN CEPHEID STARS

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He had been a perfectly ordinary astronomer— until he met a woman with very peculiar needs!

ON FRIDAYS, I LEAVE the Observatory as the sun sets down in the west. Driving my brown BMW down from the mountain solitudes and across the valley floor, I arrive at the Observatory's subsidiary offices adjacent to the University. We are not officially a part of the University. Students rarely come to visit us.

As I drive, I wear polarized glasses of a gray tint especially developed for the Gemini astronaut program some years back. In this manner, I protect my reserves of visual purple from the sudden flare of opposing headlights. There is no telling when this kind of encounter is likely to occur and so I prepare for the probability. The roadbed curves through the sinuous geosynclines of the folded mountains.

I leave the staff parking lot at four P.M. pulling out into the steep driveway. I try to drive as fast as I can catching all the turns like Phil Hill used to do. Hill is one of my personal heros. Do you know why? Because he finished up ahead of the game and retired, that is why. I take the turns at optimum speed. There are coarse gravel skirts on either side of the blacktop and a long winding stretch quite near the Observatory where there is no white line. You never know what might be coming the other way.

At the Observatory, my duties entail tending the instruments four nights each week in association with Dr. Emaus Corweiller, the Chief Observer. My position is one of considerable envy in the field since Corweiller is among the most acute and most accomplished sky watchers now at work. He is also an astronomical theoretician of amazing versatility. He has a wholehearted way of accepting all cosmological concepts and then dismissing them as irrelevant. I am his senior assistant. He is an effusive, happy man much given to animated conversations and he gives me his full approval for my tedious personal researches into the observable spectra of certain Cepheid variable stars.

Corweiller and I are on watch together Tuesdays, Wednesdays and Thursdays working on the Observatory's current study, an assigned task of plotting galaxies in the Cetus region as part of a cooperative worldwide nebulae study. On Saturday nights, we photograph binary star systems. This is Corweiller's personal project. Although much recent data of stellar

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phenomena has been gathered by monitoring radio emissions, nothing can be quite so spontaneous as actual observation and photographs. This is our area of expertise.

My work begins after sundown as I prepare the dome for our night's work. First, fans are turned on cooling the great mirror to equal the expected outdoor temperature; then, as the Chief Observer enters the dome from his study, I open the canopy revealing the patch of heavens that we are interested in. Corweiller takes great precautions to check and recheck all of my coordinates and to assure that the great 'scope is accurately trained. He monitors the cessium clock which controlls the tracking mechanisms. He reviews the previous night's watch plan and carefully examines the film magazines and the photographic plates which I have prepared for his use during the night. I do not mind this constant review of my work. Corweiller is very precise and it is important in our work that the elements of error are eliminated.

We exchange silent greeting as he enters the tiny elevator that takes him up to the observer's platform. I have the night plan ready for him. My calculations are exact and he is always appreciative. I keep close watch on several chronometers and time the exposures for him. Occasionally we will discuss the composition and light sensitive chemical qualities of various film emulsions. Other than that, we rarely speak. At four A.M. I take tea up to him in a stainless steel thermos and in these close moments, up there in the observer's chair, he allows me to peer into the depths of the universe and gaze out at the indelible wonders of the stars. I sleep in the daytime. The nights emerge, a precession of clockwork.

On Mondays and Fridays, I prepare my own work on the varying intensities and rhythms of the pulsing Cepheid and RR Lyrae stars. There is some speculation to date that our own star, Sol, may be just such kind of star and that it is in fact irregularly variable. I would hope that my own researches based on the changes of the visible spectra in certain of these variables would lead us to some conclusions about the nature of our own stellar environment. What I am doing is decidedly routine but I take pleasure in knowing the measure of scheduled days.

* * *

Each Friday, after my ride down the mountain roads and across the valley, I come to a block of apartment buildings close to the University. These are two-story brick buildings with steel casement windows. Hedges line metered sidewalks and the grass is always trimmed and green. Dogs are not allowed.

I visit a young woman who lives there. She is a divorcee who has

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one child, female, four years old, blonde, normal build, fifty-two pounds. The child stays with a sitter on Friday nights and I don't see her until Saturday mornings. She hasn't learned my name yet. Her mother is also blonde. She is always eager to see me and appreciates my scientific pursuits. She is a microbiologist and works cataloguing viruses in the laboratories administered by the famous Raoul Fuchs, a pioneer in microbiology. The lab is funded simultaneously by the University and by several private medical foundations. The staff there is very well paid and cared for. My weekend lover works closely with Fuchs, although I don't think he speaks to her very often.

I arrive at seven-thirty every Friday night. She gives me Scotch to drink and I relax from the treacherous drive down the mountain and from the tensions caused by anticipating the blinding lights. She always has her apartment lights turned low because of my professional concern for the quality of my night vision. She is a very soft woman with clear, fair skin. Her name is Claudine but I call her Clo . . .its an affectionate pet name that I learned in France when I was there on a research exchange. A professor I knew had a wife named Claudine and he often called her Clo.

Clo is usually passionate and playful. She freely directs my preliminary caresses. Her bedroom is small and white with blue curtains slightly faded by sunlight. There is no brick-a-brack. She has displayed five original Jasper Johns prints along one wall. She purchased them some years prior as an investment. On the opposite wall there is a long dressing mirror and a walnut hutch which she uses as a dresser. Her voice is melodious. Often tears come to her eyes, perhaps with anticipation. She is curious and breathless, drinking that which I save for her each week.

At a quarter to nine, we leave the apartment building and walk to the campus cinema series held in Specker Hall. We walk along the streets that are crowded with noisy vehicles and choked with old tabloids and shopper's throw-aways. The mercury vapor lights don't generally affect my eyes, but I wear my Gemini glasses just in case. She wears a leather coat with a mink collar, a gift from her former husband who was an actuary. Their divorce had something to do with her flute playing.

On this particular night I began to notice certain subtle fluctuations in the predicted pattern of events. There had been no sudden encounters with mad truck lights in my usually perilous descent from my mountain sanctuary. Rather, it was a smooth, restful ride and I noticed the orange streaks in the western sky. The valley roads were not crowded with the usual vehicle traffic. People were not swarming

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around the drive-in fast food dispensaries, nor were any of their sallow children to be seen clamoring near the garbage receptacles. I did not see a single Highway Patrol car. And since it was very easy to find a parking space near the brick apartment buildings where she lived I arrived somewhat ahead of schedule.

The babysitter was taking the child away as I entered the bright yellow hallway with its series of brown doors and brass fixtures. I do not like the green carpet. The babysitter was overweight, as I had once imagined, and smiled at me without looking at me directly. The child was playing with a stuffed cotton owl. The babysitter giggled as she took the happy child upstairs to another apartment.

Clo was waiting, flushed and excited. I could see that she was very happy and had been drinking. The lights were all on bright, but that didn't really matter because I had kept my Gemini glasses on, whereas I usually put them into their titanium case and placed that in my inner breast pocket. I closed the apartment door. She said, "They were celebrating at the laboratory. Ransward has been promoted. Even so, his wife is no longer ill and then there is the news from the greenhouse. They have completed the new wing."

"Was it a grand opening?" I asked in reply. The venetian blinds were drawn up, the cords hanging loosely to the floor.

COMING NEXT ISSUE

A *Galaxy* Exclusive:

Gateway's
other ending!

DON'T MISS IT!

Clo became very suggestive of sudden passion and stripped off her cashmere sweater and bra right in front of me. Her nipples were extended. I still had my raincoat on. There was a glass on the cherry coffee table and I assumed that it held scotch. She lay back on the couch, her arms stretched over her head. The uncovered window seemed to intrigue her. "What if someone looks in?" she said, laughing at the thought she had expressed. The possibility seemed to heighten her playful sex game. She asked me to drink some of the scotch. It was from a John Begg bottle I had bought three weeks prior. I didn't even think of her small white bedroom. She was very daring to have pulled the venetian blinds up . . . it seemed to be something planned. I wondered about it, but said nothing and kept most of my clothes on just for diversion.

* * *

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We were late starting out for the cinema. She held my arm and discoursed on the peculiar nature of the quaint, humorous viruses which she was currently observing.

I noticed that the gutters and streets were clean and I only saw one throw-away shopper's guide. Briefly, from the corner of my eye, I saw "NOW" and "59¢" in red letters. Light rain began to fall as we climbed the wide cement stairway that lead to the Specker Science Hall where the medium capacity auditorium was reserved each Friday for members of the Cinema Series. I have been in regular attendance for twenty-three months. The series is particularly frequented by scientific professionals and lately the incidence of political types and radical artisans has been waning, a cycle I have noticed to have a peak/slough frequency of four months. We took our seats quickly. I couldn't recall being late before. The evening program had just begun. I had seen one of the films before. It was directed by Robert Flaherty and the grainy quality of the print was somehow relaxing.

There was no reason to think about the dead peonies; nothing in the film program suggested them. I didn't notice any cigar smoke and kept my right hand close to the mink on Clo's leather coat collar. Twice during the program, which was somehow quite brief, she whispered to me about ink on her hands. "I had to wash them three times and then it was difficult under my fingernails," she said at first; and then later, toward the end of the second film, which was an obscure Latin American political drama, she whispered ". . . you would think they would get some special cleanser. It's hardly visible now but some is still there on my thumb."

There was a medium rain falling as we left the cinema. The air had an acid taste to it and I found it uncomfortable to breathe deeply. She didn't want to go to the Pizza Palace, but I insisted in a quiet manner. It was a necessary part of the evening and a contrast to the studied decorum of the Cinema Series. Many of the same people from the cinema went to the Pizza Palace afterward. I was happy that she soon forgot her reasons for not wanting to go.

We drove on near empty streets with colors from the storefronts and from the street lights running together in the reflections of the rain-wet street. We didn't play the radio. She always considers this drive to the Pizza Palace to be precarious and she doesn't like the old streetcar tracks, especially if they glisten in the rain. It's very difficult to avoid them, but I manage it very well. She says they frightened her as a child, that she saw them as dangerous metal snakes. She tends to stare at them in fascination when they are wet and threading away into the light. She knows full well that they only lead to the deserted

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car barn. Somehow the imagery terrorizes her.

On this night, there was a large crowd at the Palace, as I had expected, due to the modest rain. The incidence of crowds is somehow variable with the density of the rain . . . light or heavy rain will produce only a moderate crowd, thinning to only a small gathering with the heaviest downpours. Moderate rains produce the heaviest crowds, so it's easy to see the expectancy. It was difficult for us to get our usual table and we both noticed the gaping mouths of the pizza eaters assembled. She gave her secret laugh. Eventually we had to share a table with several others, something that I readily enjoyed, but sensed that she didn't.

Two frowns from the history department sat quite close to us and perhaps for our benefit engaged us in a lively discussion on the philosophy of science. Inevitably the discussion led to the proliferation of nuclear arms and the moral question facing those scientists involved in planning the developments in nuclear engineering. I thought that I was correct in stating the inherent differences between pure and applied sciences as well as the difference between research and engineering.

Actually, I wasn't quite prepared to accept the discussion, involved as I am with the vast reaches of deep outer space where man and his toys, now so lethal and extortive, are quite obviously not permitted. I told them about the state of flux in catalogued RR Lyrae stars and that our own Sol might be just such a star and that our state of society could disappear, almost if not in fact overnight. One solar flare of major intensity and life here on Earth could be reduced to bacteria. They weren't prepared for such a casual statement of cosmic practicality, nor for the immensity of gas volume ejected from variable stars in the form of intermittent solar flares.

I began to notice a fluctuation in the pulse of conversation and was sorry to have left my Omega wrist chronometer in the car. I became aware of a certain tall girl sitting close to the window.

I felt a sudden tension creep across my forehead as if I were involved in heavy concentration. The history buffs were deep into the latest account of nuclear reactor accidents and were parying the reality of the India tests with new reactor plans speculated on by the Egyptian forces amid the Arab community. A chill spread evenly across the floor. I could see it flow as well as feel it tuck about my ankles. I looked across the table expecting to gaze into the eyes of my lover, she who is my friend and who helps me dissipate the cloudy tensions that gather from the mental intensity my work requires.

A cold phase of inactivity had gripped her. It was clearly someone

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else looking out from her eyes. A change spread over her face, subtle and unnoticed by anyone else. I stared at her, transfixed. It appeared that a hairless, brown-toothed old man was peering at me, or through me. There was a laugh of recognition. I shuddered. It was clear that this subtle figure was aware of all our intimacies.

Behind him, I had the image of an amphitheatre somewhat like those used for surgical instruction. It was occupied by a chorus of washerwomen who sneered at the sensual content of my mind. As suddenly as they all had appeared, these imagistic wraiths, there was a sudden increase in the level of the rainstorm.

Again I noticed the tall girl sitting alone at the window. Her hair was a soft reddish brown. A message came to me from her mind. I knew she was trying to contact me. I had known it for three weeks. Now it was clear. I knew that I would see her the next day at the data processing center. She worked there for a Laser Spectrographic Statistic group. I recalled seeing her before.

With the sudden increase in rain, the searching ghost of an old man left the face of my companion. She seemed unaware of any outside event. She noticed that my hand was shaking, so I quickly brought my mind to the reference file of main sequence stars. This is a great stabilizer for me in times of unclarity or stress. The hideous washerwomen and their spectral interlocutor dissolved completely as the waitress came over to our table to announce that the Palace was out of mushrooms. I suddenly said, "Cassiopeia," outloud! No one seemed to hear me.

I had a sudden impulse to return to the Observatory that very night. The pizza arrived just at the critical moment in the decision process, and I was persuaded by its aroma to postpone any sudden departure from the median flow and to ride out the night's impending storm. Even without the mushrooms, the pizza centered my consciousness enabling me to overcome any desire to flee back to the safety and comfort of my familiar rooms on the mountain. The rain continued and even increased in falling density. There was no wind, only heavy rain. As we consumed the pizza its steamy air-pocketed crust supported the bubbling cheese layer and emitted the pungent scent of oregano. I again felt that the tall girl from the Laser Spectro group was signalling me.

It was her aura that reminded me of Cassiopeia. I strained to imagine her motives, to grasp the import of her need to contact me so covertly. She seemed intent upon the patterns of sound generated by the rise and fall of the frequency of the rain.

Mentally, I notated the rain patterns in a binary sequence. I would be able to run them into our com-

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puter module the very next morning.

The rain began fading to moderate. The Cassiopeian left the Palace suddenly, just as a squad of happy undergraduates poured in the front door. As I had once observed, the fluctuations in the density of rain was proportional to the density of the crowd. More people poured in the door as Clo and I prepared to leave. We helped each other with our coats and slipped out into the rain. I was chewing the last of our pizza crust, and Clo was reciting stanzas from Poe.

My eyes had suffered somewhat from the flare of the neon beer sign that hung on the wall of the pizza place. It had been directly to my left, affecting my peripheral vision to that side. Because of that, Clo drove us home to her apartment. She didn't mind driving, in fact seemed to enjoy the wet streets and the slow-moving traffic. She understood that my mind was busy with the variable star project. I did not mention the vision that I had observed in the pizza shop. I knew that such a disclosure would only bring forth a welter of confusion and attempts to ease my state of mind.

I was clear in the matter. I knew that the girl from laser data and the vision of the spectral searching man were real and related. I was unable to make any of the necessary synaptic connections and was particularly uncertain as to the nature of the name "Cassiopeia" that had appeared in my mind. I labled the entire phenomenon "Cassiopeian Intrigue" and filed it all away for further investigation. I especially did not mention the part about the tall girl sending me messages.

* * *

Much later, as I lay naked and erect upon Clo's bed, unresisting to the explorations of her fingers and of her lips, I repeated the binary sequence that I had notated in the drumming of the rain against the window where the tall girl had been seated.

The sequences were clear in my mind. I was speculating on the probability that this Miss Cassiopeia was manipulating the frequency in the manner of a code. Clo enjoys our late night sex play, especially, it seems, when I am into a state of mental concentration that rather detaches me from my body. She finds that I am then passive and unresisting and she can have my body completely under her will and desire. This seems to occur in the middle week of every second month usually just before one of my major bouts with the data processing machines. Clo is far more tactile than I am. It pleases me also to be able to surrender my body to her.

That night as I lay awash in the rhythms of her touches, I again felt the rhythms of the rain and just for one instant imagined that Clo and

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Miss Cassiopeia were one and the same. I fell asleep envisioning the morrow's encounter.

My time schedule for the data terminal was 9:22 until 10:44 in the morning session and 4:42 until 5:52 in the afternoon. I always process for an hour or more. I am very fortunate in having this much time available to me for my own project. Corweiller is responsible for that and I am very grateful for it.

I have a close friend in cloud physics at the RAND Corporation and he can't get anywhere near that much time even for his confidential projects. I once offered to surrender some of my time on our access to the 4000004. He did not take the offer kindly. He failed to see the humor in my situation. He certainly considered that the offer might have been a security test.

I was prepared to arrive at the data center at 9:00. That would leave two minutes to enter the building, five minutes to make my way to the Astral Research Data terminal room and fifteen clear minutes to organize my thoughts and direct them into the flow of my project. Computer programs were my specialty in high school. I secured my university scholarships through a mastery of the mathematics involved. I feel very secure in front of a computer console and my capabilities are well recorded.

That morning I allowed for delays and mishaps as I usually do by getting up at 6:35 and getting an early start. I have never yet missed schedule on data time. I am always ready to activate my console and plug into the electron flow on time and without delay. After breakfast, which I always prepare as this is one of my personal joys, Clo went up to the sitter's apartment to bring her child back home.

It was during those moments while I was eating the last of the cornmeal muffins that I began to realize that it would not be an ordinary day. I suddenly suspected that the binary notations that I had made the previous night from the raindrops would probably phase into some kind of language and thereby a direct message would transmit. I could see that I would probably not be working on my own ideas or with my own information. Ordinarily this would have distressed me but I was intrigued by the Cassiopeians and I didn't care if I missed the entire day. I sensed that something of more immediate importance was going on and I vowed to keep my mind open as I prepared my morning program.

According to schedule, I arrived at the data center just at 9:00 A.M. Clo had driven me there in my BMW since her own car was due for lube and oil. Her daughter accompanied us and as I got out of the car, the child said to me, "Hurry, hurry, Cassiopeia is calling you." I was thunderstruck at first, and a chill started to gather about my ankles again. Clo said nothing

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unusual, however, and the bright sun of the morning glittered in the windshield. They drove off without any further inferences.

I went into the building without any more hesitation. The morning sun and dewy fragrance in the air was replaced by the even, flat fluorescence of the entry corridor. The Observatory offices and data consoles are on the top floor. We have a splendid view of the local rooftops and the towering old trees and bushes. There are more than 350 rare varieties of trees in the neighborhood and with the high rolling hills and the porticos of the more residential areas, the entire scene is quite pastoral, especially on Saturday mornings. I took the red elevator to our floor and checked into the console room immediately. According to schedule, I plugged into the 4000004.

* * *

Unprecedented input barraged me. I began to receive voluminous static and superfluous data. I activated several damping frequencies to filter out the unessential noise and return the console to my control and activity. I began to concentrate on pertinent details and to slowly organize a residual fund of sunspot data in preparation for a cross referal with the suspected emission data from Cygnus RR7240.

Right away I received a direct order from the 4000004. I was stunned. I had both heard and imagined that console technicians, true artists in the science of computer programming and engineering, could with fortune and polarity contact the heart of the machine.

The 4000004 itself began directing the course of events. My sunspot cross referal was shuttled into an idle memory rewind and my console was cleared. The video screen printed out my name. I was directed to pay attention to the screen. I was next directed to punch out a simple pattern on a standard input card and did so at the cutter, which is just like a typewriter cutting stencils. The keyboard is different with more symbols and the only thing it does is cut holes in plastic cards. I looked at the pattern I had cut and couldn't place it anywhere in my mind. I memorized it as a matter of professional curiosity and determined to reproduce it sometime in the future.

The video screen next ordered me to fit the card into the receiver. I balked. I punched in a mathematical question which was not in itself material but one by which the 4000004 would know that I wasn't just taking orders from a machine. The video screen immediately told me that my sunspot data would be cancelled unless I complied. I was not at all used to coercion and my hands began to shake. I had devoted twelve years to compiling that data. I followed the order.

There were two other consoles in

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the Astral Research Data room. Both of them activated the moment that I put the new program into the receiver. I was startled and a bit frightened. I didn't have authorization to activate the other consoles. It was not considered ethical to tamper with someone else's console without prior acknowledgement. Years of work could be erased in milliseconds.

The 4000004 next ordered me to be calm and not be concerned for the opening of the other two consoles. The data they controlled was being stored in similar manner to my own simple collations of sunspots. I sat in front of the center console, closing my eyes as the extraordinary input increased. I began to visualize and to hear the workings of the data flow contained in the machine. The 4000004 is really a very big computer and until then I had no actual idea of just how much information and how many additional probabilities were available. I began to see within my mind and fixed on a crystalline structure vibrating sonorously at 3600 cycles per second.

I hadn't seen the tall girl that morning. I had often seen her before on these Saturday mornings either in the corridor or behind the glass windows of the Optical Laser Group study library. A second image appeared in the middle of the crystal structure. It turned and glowed softly like a hologram. The next order I perceived inside my head. It was Miss Cassiopeia. She was seated at a bench in the Laser Spectro Laboratory. I looked at her clearly. She said, "I need your help. Pay attention to the 4000004. I need your assistance."

The image faded and next I saw Clo sitting in the park nearby, not far from the tennis courts. Her child was picking miner's lettuce that was growing in a ragged row under a clump of older eucalyptus trees. I could see Clo's old black Porsche speedster sitting at the curb with the top down. Clo looked at me out of the depths of the glowing crystal.

She said, "You have been selected to assist Miss Cassiopeia because of your expertise in manipulating the energy flow of 4000004. The machine likes you. I am going to help you. Perhaps you think that I am not enough aware of the intricacies of this machine, but that is of no importance. You may feel free to draw upon my mental energies as Miss Cassiopeia directs."

There was no time to respond to Clo's announcement. A polarity surge swept me into activity. The 4000004 began to give me programming information and was requesting routes for a fifty micron laser flow. I opened six optical circuits for a review and let the machine pick the fastest one. The video monitor gave me the message, "Fastest is not always best," and then, "Prepare six additional routes that are less direct."

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I wondered why the 4000004 couldn't do the projections itself and then I realized that the machine was not entirely in control of things and that if it needed me to program, I had a definite lever to use in regaining my illusions of independence. I opened six more opticals and sent them on longer routes that combined a series of thin-film prisms which were sitting unused at the entrance to the spectrum analyzer of our own Space Simulation Lab.

The machine next directed me to put on a fine-wire headset that was resting on top of the video monitor. It fit lightly over the temples and around the medula oblongata. It appeared to be made of molybdenum and had two crystals of unknown composition situated on either side. The headset was not part of the 4000004's standard equipment. I didn't have time to ask where it came from. As soon as I fit the device over my temples, I heard a quick pleasant note somewhat like the ring heard upon striking a piece of fine cut glass. The ringing tone was followed by a rush of electronic bell tones similar to those heard in long distance couplings of the telephone system.

* * *

I realized at once that my mind had been propelled out of my body and that I was, in all certain effects, a conscious part of the 4000004 itself. A wave of fear swept me through a series of terminal blocks and through the high threshold extra noise barriers. I became aware of all memory cores stored within the data retrieval systems. I knew the essence of the various circuitries, electrical as well as optical. I came to rest in a cool yellow place that seemed to harmonize with my own frequency of excitation. Miss Cass was already there waiting for me. She anticipated my questions about the headset and about a lot of other recent phenomena which were beyond the schedule of regular events.

I heard her voice drifting to me from the very substrate structure of the optical couplings. "The headset was made according to my design by technicians in my employ. The 4000004 is currently under my direction. I planned it that way for this time period. We are in a fortress. It is a fortress of my mind composed to protect me from an assault that is due momentarily.

"We are currently the only minds within the machine and the only operators working at the consoles. Your body is functioning quite correctly and continues to follow directives impulsed through the electron flow. It is at this moment constructing a pattern of decoys, dodges and traps for my assailants. The body that you identify as "me" is in the Laser Spectro Lab, building an obstacle course for amplified light. Your function will involve coordinating a variety of microwave and electron circuits. Pay attention and

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do what is required and you shall be well rewarded."

I was concerned to hear of my body spoken of as "it" but I adjusted quickly to being both me and not-me. I was primarily determined not to lose twelve years of astral research to the inner workings of the 4000004 and its new controller. The body that had housed me was not-me. It was working smoothly under the direction and supervision of the 4000004. Miss Cass generated an image of the Astral Data console room and I saw myself seated comfortably at the digital printer. Biological functions were monitored and displayed on the oscilloscope network in the medical research monitors of the astronaut program located on the third floor. I regained a measure of security in knowing that my body was being cared for by the very machine that was using it.

I caught the image of Miss Cass' long, slender earthbody tinkering with a variety of laser gear, principally a niodimium single pulse generator of great length. She was a very beautiful figure, tall and slim. Her fingers were quite long and very busy with inter-connectors. I couldn't decide what she was doing and looked for the answer within the 4000004 itself. I had to do so in-between micro-bits because I was being called upon every few seconds to make numerous changes in pre-scheduled programs. It seemed to me that some sort of evasive contest was being waged somewhere in the tiny world of electronic impulse modulators.

I was able to detach a reasonable portion of my creative mind from the rather rote re-programming that was being called for from the central data banks. With this essential explorative problem-solving entity within my mind-body, I was able to tour about inside the circuitry.

The first noticeable situation that I encountered was the full "ON" status of the Visual Simulation Laboratory on the same floor as our own console room. The entire staff of the Visual Experiments group was away on a picnic. Yet, the monitors and video screens amid their collection of advanced equipment were all in operation. The complete arrangement of optical circuits, those operated by laser light instead of the more conventional electrical current, were in play and the latest speculations in thin connectors were manifested in a variety of wave-guide modes. Light waves emanating from the thin-film lasers formed a maze of probabilities that I dared not explore too deeply at that instant for fear of getting lost within the blur of vari-colored lights.

As I navigated through the memory core terminals, Miss Cass' voice caught up to me. "Behind alpha-Cassiopeia is a binary star," she said. "It can't be seen from Earth because alpha-Cassiopeia is the sight line. The way your planet

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is moving, the binary system that was once my home won't come into view for another 324,000 years. The binary system is blue and white . . . a small, tiny, lovely white star, a diamond so beautiful. And then there is the blue giant. The giant star has fifty-five inhabited planets revolving in its biosphere. The white star has only three.

"The Overseers of the blue spectrum star captured the white system about three million Earth years ago. My whole family of Advanced Light Cult Technicians was put to work for the Overseers. About two hundred years ago, two of my sisters and I escaped via our mastery of hyper-light devices and application theories. I have been hiding here on Earth since 1904 and have passed my consciousness into three living bodies including the one now working in the Laser Spectro Lab. This latest one I conceived with a Swedish Olympic star back in 1954 She is now twenty-three. The host body, the mother body, dies soon after delivery and the mind-body migrates to the new baby. You will be getting into that here on Earth in another million years or so.

"One of my sisters lives now on Banisteria's, a single uninhabited planet that revolves around Proxima Centauri. The other one wanders through the uninhabited spheres that sprinkle the millions of stars in the Clouds of Magellan. Eventually, we plan to establish a colony of our friends there to carry on the precepts of our Cult of Light and exist there in freedom without coercion from any Overseers. We will be effectively out of the galaxy."

It was hard for me to comprehend what she was talking about. I couldn't imagine who these Overseers were and why she was hiding from them. I was fascinated by the inner workings of the 4000004 and was determined to discover how this Miss Cass had contrived to commandeer such an elaborate machine and, more importantly for my own welfare, how she managed to propel my mind into the inner workings of the circuitry. I dispensed with any mathematical communications and asked her directly why she was afraid.

"Unfortunately," she replied shortly, "the Overseers from Casularix, that's the blue star people, have issued an arrest warrant for me and my two sisters. That has made us fair game on any of the planets that Casularix corresponds with, including all of alpha-Cassiopeia. The Overseers hold patents for some of the hyperlight devices that we designed for them in order to pay off our father's mortgage, see? By claiming that we are potentially subversive knowledge holders, they have somewhat quarantined us to underdeveloped planets like Earth or totally noncivilized places like Banasterias.

"Fortunately for us there are a hundred Earth places within easy

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reach of the average light traveller and it is hard for them to track us down. They want us in jail somewhere so we can't break their control of the light device market. Actually we have no such plans. But they are much too mercantile to believe it."

I was preparing to ask a dozen simple questions when a lower decibel audio wave brought the defense system to alert status.

The first attack began as an infusion of sound vibrations that immediately threatened to overwhelm the laser currents I had constructed as perimeter defense. Sound waves can create interference patterns in a laser beam as it travels through certain transparent solids. The interference patterns were beginning to disrupt the sequence of our color codes and, at instants, breaking the cohesion of some micro-watt beams. Miss Cass remained calm and unmoved within her orb of concentration. The 4000004 was completely in her control.

As the sound-wave invasion began probing into the secondary data receivers, she directed a magnetic microwave advance to absorb it. She was taking the sound probe into the peripheral data circuits and rev-recording them . . . "If these sounds could be packaged here on Earth and put out to the public on cassettes, you would probably have a market potential of 26,506,740! Seventeen percent would be certain to purchase."

Her message was printed out across the security data third floor system analyzer which was housed right next to the astronaut premedical evaluation study. "Quite a nifty profit would be gained and you wouldn't have to arrange accounts for the musicians."

"Who is it?" I questioned her. "Who is attacking you and why?" I wasn't at all sure that Miss Cass should be so protected. She had definitely conscripted me. I was her lieutenant, her general and her private all at the same time. I wasn't at all sure of her, but managed to balance my uncertainty with the unprecedented opportunity to explore the inner workings of the 4000004. For the moment I was quite capable of manning her battle stations and countering the somewhat clumsy and rather scattered attack that was in progress.

The sound attack was being drawn off and absorbed on the magnetic recorders. As each tape was filled, not-me seated in the Astral Data room drew the contents through the satellite communications group translator, amplified the impulses into microwaves and transmitted them back into space via Galaxy Communications Research Facility located in the high desert, three hundred miles away. I knew these sudden and unauthorized transmissions would cause interruptions and theoretical arguments at the GCRF that would never be explained. I tried to disguise the fre-

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quency barriers to resemble cosmic ray-hadron interactions, but was certain that the shallow curve graph details would be detected. Miss Cass did not seem to care or even to notice that we had pirated several classified strategic transmission cycles. I balked at her cold hearted disruption of a multi-million dollar communications base. Some of the finest minds of the century worked at GCRF and I had often been out there myself in a consultant's capacity.

"People can lose their jobs over this," I complained. "This is completely unauthorized!"

Miss Cass' reply was accompanied by low hissing static. "Unauthorized? I am the authority within the 4000004. These technologies are here and now under my direction."

I hated dictatorships, but I held a reserve of admiration for her concentration of energies. This unknowable person was commanding an interrelated system of potentials that had taken the combined evolution of Earth civilization five thousand years to build. And she was using it for a shield. Her voice filtered out of the hissing static and fluttered amid the lower decibels. "I have made these separate technologies work together for the first time, perhaps the only time in their brief histories . . . the 4000004, the GCRF, the Laser Spectro Group, the Visual Simulations Lab, Astrological Data, even a feedpulse generator from the Linear Accelerator."

Her voice flowed away like springwater tumbling over rocks. I had the sudden feeling that perhaps this was the only true reason for the existence of Earth's massive electronics industry . . . to protect Miss Cass from her pursuers. All the other reasons, the research, the advance of knowledge, the myriad applications of science and engineering, medicine and commerce were at that moment inferior and secondary.

The sound attack faded. It served only to tense the system of defense. I agreed with the principle of absorbing the varied sound energies, mixing them into softer and more manageable frequencies and then amplifying them into microwaves for transmission back into space. Miss Cass' ability to turn barrages of noise into music intoxicated me.

The amplified 4000004 hummed and whined at triple speed. I hadn't known such complete circuit integrations were possible. I began to relax a bit and to enjoy the sensation of being completely in tune with one of the most diversified computer systems on the planet. I thought that the attack had been rather weak. I couldn't see the reasons compelling such an elaborate defense capability as Miss Cass had constructed. She was, after all, occupying multimillions of dollars worth of advanced electronics. I began to poke around in the mem-

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ory rewinds looking for my sidetracked sunspot data. I didn't form a complete mental image of my intention: I didn't want the 4000004 to get anxious about my surveys.

Miss Cass seemed quiet and very distant. She was setting up a maze of photon circuits within the Laser Spectro Lab's experimental energy translators. I could see her Earthbody on a video monitor in the Biodata Observation Unit. She was still busy interconnecting a series of flash pumps about a niodimium lasing rod.

Miss Cass had contrived to schedule the most advanced collection of modern technicians away from their hardware, away from their theoretical homebase. Every other computer person in the 4000004 Program was away on vacation or a picnic or accumulated sick leave. It was a schedule she had processed over a time period of eleven months. That was quite understandable because everyone on the Program had his schedule arranged to some degree by the 4000004 itself. I had a momentary insight into her nuclear sense of timing just as I was relaxing into thoughts about our own rote acceptance of any computer print-out or computer issued statement, bill, or time schedule.

* * *

The second attack began soon after the sound probes had been absorbed, transmuted, and relayed back out into space. As I wasn't expecting another challenge the alert signal startled me. The 4000004 gave the new assault the code title of "Copy Two" and sent out an order for replacement parts. I began to see that the original 4000004 was limited to certain modes of thinking and reacting. I was amazed at its foresight in planning for future breakdowns.

The electron flow that was being directed at us intensified and began to overflow the diversion circuits that I had prepared during my first few minutes of conscription. Excess energy was coming into the primary relays and racing toward the binary memory cores. The memory cores began to record this radiation as fast as it came in. Miss Cass quickly directed me to reverse the polarity on the magnetic fail-safe impulse shredder and hang on.

I began to feel an applied extra gravity compressing me. The electron flow assailing us was saturating my station. I couldn't move my thought patterns very well and began to panic. The sense of being squeezed into microspace and isolated there was terrifying. A thousand negatives flashed into my consciousness. I was certain that Miss Cass had contrived to murder me in the pursuit of her self-protective schemes to control the 4000004 complex and its supportive systems. I had to struggle against a hundred forces that pressed upon me.

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I was losing my identity and feared disintegration into the molecular status.

I tried to recall the preliminary images that I had seen when I first plugged into the console earlier in the morning. I couldn't determine how much time had elapsed since then; I couldn't tell if it was five minutes or five hours. I recalled seeing Clo and her lovely daughter playing in the sunshine and I wrestled against my attackers in order to draw close to Clo, her child, and the flowers.

I remembered her last words to me. They seemed now like final instructions, ". . . you may feel free to draw upon my mental energies." I sought to do so and the picture that stayed in my mind process grew stronger and more clear. I could not, however, bring to mind any contact with Clo nor any further instructions that would assist in the evasion or repulsion of my attackers. Clo's image seemed to drift away beyond my reach. The face of her child became transparent like a leering jack-o'-lantern lit by candle. Each time Clo appeared to speak, her words were blurred out by the soft, floating tunes of an unseen fluteplayer.

An aurora of pink and yellow light eclipsed the sunny, flower-dotted knoll that Clo sat upon. The flute music faded and the entire picture shriveled and blew away like mist.

In a rage of fear and loss, I threw off the yoke of gravity that was condensing me and fled down a corridor of ruby light. I was deep within the microcircuits of the optical spectrum, pursued by an echoing roar of free electrons when I suddenly came upon the retrieval circuits in which the 4000004 had hidden my sunspot data. The reel was set to unwind through a magnetic eraser. I flashed a "close" signal to the eraser, sent the entire real of data to an unused residual collating bin and fused the input-call switch which consisted of a magno iron-garnet film set on a circular substrate disk of iso-garnet. The data was safe from internal communication. There was no way for the 4000004 to recall it and send it to an eraser terminal.

I was free.

I was not free from the pursuit of Miss Cass' attackers. Naturally they sought to destroy my effectiveness as her ally. I began to visualize a swarm of electronic warrior emissaries gathering about me again. I fled once more into the laser light corridors of the optical circuits. There was no time to assert my freedom from the 4000004's directives. Quite the contrary, pursued as I was, I needed the machine's assistance and protection. I requisitioned an impact by-line through the maser transducers and sought out a friendship maze in the pattern reproduction unit. The 4000004 was not responding adequately to my distress calls.

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I felt that I was drowning in electricity, that I was a fish swimming through dry sand. I began to absorb the energy that surrounded me, seeking some medium to sustain my flight. I imagined that I was lost on the Moon trying to breathe powdered rocks in place of air. I expected consciousness to wane, however, the compression that threatened me lifted. The roaring express of electrons that pursued me fell far behind. I thought that I could hear gulls crying in a soft wind and seals barking in an unseen mist. Miss Cass appeared beside me in a yellow orb of sunlight.

"Rest," she said. "Your pursuers are gone." Her figure was entirely naked, her head adorned with a mane of soft hair in every hue. "Our maze of prism couplers has lost them in the substrates of the infra-red filters. All they can generate now is excess heat and that will be radiated away by the 4000004's internal thermostat." I began to recover from my flight of panic and realized that I had served as a travelling decoy. The warrior emissaries that I had perceived following me through the laser corridors had not found their way out. The 4000004 had diverted them into a heat trap. I took advantage of the momentary resting place to assert myself.

"Look here," I said boldly, "I'm through! My sunspot data is beyond your reach. The 4000004 is not all-powerful; it is simply a machine. It has limitations and it can't reach my data and erase it, and furthermore, you can't either. I'm getting out of this micro-war! I never volunteered and I don't know why my discomfort and peril should be benefiting you. I have a good job at the Observatory and a lovely lady waiting for me . . . in fact, I'm going to have her come and get me right now."

Miss Cass lowered her violet eyes. "Not anymore you don't. Look."

Our minds convened before the video monitors in the Visual Simulation Lab. I couldn't be sure that the scenes produced were in any way real. Miss Cass was capable of producing anything on those screens. I watched and saw Clo and her child get into a battered pickup truck. I think it was a 1952 Dodge.

Miss Cass narrated the scenes that flickered on the tubes. "Your lady friend is leaving you. The man she is with now has been in and out of her life for three years." I saw a slender, shabby figure of a man loading a few suitcases into the back of the pickup. "He is her music teacher, and the reason for her previous divorce. She is leaving you to live with him and play the flute. She is taping a note to the steering wheel of your BMW. She hasn't the courage to face you; after all you haven't done anything wrong and, in fact, she considers you a perfect mate. The music teacher has some kind of spell over her.

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They are going to live in a small shack near Sebastapol. . . . Besides that, she has smashed in the right side of your automobile.''

I couldn't believe what I was seeing. An emotional know was constricting my chest. It was hard to think straight. Clo and I had been together for seven months. True, we only saw each other on weekends but that was due to the nature of our professions. I knew that she hadn't been seeing anyone else during that time and she knew that I hadn't, either. It just wasn't like her to run off to Sebastapol in an old rusty pickup.

I decided that the video images were false and this Miss Cass was generating them to increase her leverage over me. With my sunspot data safe, she needed some additional coercives to keep me in her schemes. I was in a good position to bargain.

''The second attack is over,'' Miss Cass said. ''Our fortress has held. We haven't been defeated . . . everything is safe. Almost everything.''

''What about Clo?'' I asked. ''Everything in your world is safe but what about mine? A good part of my life has just disintegrated and I have no immediate chance of putting it back together.''

''You don't believe it now, but you have gained. When this is all over and you return to your previous schedule, you will notice that lots of things have changed somewhat. I shall have to assume partial responsibility for the dissolution of your romance. I knew it was coming, you did not . . . I could have prepared you.''

''How did you know? Why have you conscripted me? You have separated us and arranged all this. . . .'' My mind settled into a hundred questions and I began to feel very tired and fuzzed out along the edges. Miss Cass' voice softened and her words condensed on the video screens, forming images of flying creatures.

''I did not conscript you, the 4000004 selected you because of your intuitive programming skills. I tried to communicate with you on other planes, especially last night with my raindrop game, but I was unsuccessfull.''

I started to recall the binary sequences that I had noted the night before, remembering the soft and hard patterns in the rain. I was somewhat caught between self-admiration for my position of pre-eminence with the 4000004—after all there are over fifteen hundred skilled programmers scheduling in the current cycle—and my attempt to get free.

* * *

Suddenly I was overwhelmed by a great pulse of light energy. A thousand red shapes swarmed past me, followed by a great glowing globe of multi-hued intensity. I

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couldn't contain the volume of light that flashed by. Miss Cass retreated into the central cores of the optical circuitry. Her pursuers had generated a third attack.

The image that I had confronted in the previous barrage tripled. Miss Cass was losing her cool yellow composure. She began to oscillate in the red spectrum. Her familiar human shape suddenly dispersed, becoming a spidery pattern of violet. The warrior emissaries from the star system Casularix renewed their attempts to take control of the 4000004 and its variegated systems. I could actually see them this time. They had tall flickering ghost shapes but no specific mass or density. Their forms pulsated in the red wavelengths, some of them stretching into blue.

Miss Cass was generating a nervous retreat. "They know I am here for sure. Calimat himself will join the attack. They think they have me in a corner!" I couldn't comprehend the mechanism by which these emissaries intended to capture Miss Cass. No sooner had I formed the question than I received the answer via the 4000004's intramural communications simulator: ". . . there is no capture, my ally, there is only absorbtion. Calimat intends to consume my energy and take my light-knowledge for himself. With my quantity absorbed into his, he can master the hyper light techniques and gain control of the Casularix star system."

I was not a decoy this time. The waves of pursuing energy forms swept past me into the micro regions of the photon oscillators. I began to close down the entire system, circuit by circuit, coupler by coupler. I felt that Miss Cass had gone into total micro-space. Her pursuers, including the glowing obesity known as Calimat, chased after her.

I saw my chance to escape from the conflicting barrages of electrons and began to race through the optical mazes, closing them down behind me. I directed my material body, still seated dutifully at the Astral Data console, to prepare mathematical ionization modules similar to those observed beneath preliminary stellar atmospheric coronas and to jam the entire 4000004 system with these primary electrical patterns. The opportunity to escape from the inner binary relations cores arose when the entire impulse sequence diode unit fused and melted down. Three separate waves of amplified light shot out of the spectral pattern composite and I was propelled along with them like a raft on a flooding river. By quick chance, I managed to adhere to an island of tranquility at the entrance to an antique transistor relay that was part of a microwave generating station.

The machine was shaking down and free electrons were hurtling everywhere. Data impulses were unwinding from the memory cores at

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random intervals and there was no more internal cohesion to any directives given.

Slowly Miss Cass emerged from the fused infrastructures and shattered substrate material. She began to radiate her familiar aura of yellow-gold light. "They are gone." Her voice sounded distant and weak. "My fortress has indeed held together. The emissaries sent to absorb me have themselves been absorbed. Calimat was fused in the burnout of the thin-film couplers. He is not an entity of this Universe any longer. He and his tribe of Technopriests will not gain control of the hyper light devices."

I was recovering my nuclear cohesion and lay back, luxuriating in a continuous emission of pleasant radiations. I couldn't exactly say that I had been wounded in action, but there was a certain feeling of healing that flowed through me. Miss Cass did not seem to have been ruffled by the burnout or diminished in any way. Her light had increased: her light-body had grown.

"It's a shame that I didn't schedule our meeting sooner." Miss Cass looked radiant. "I'm leaving Earth in a very few seconds. You won't be able to follow me until you master the hyper-light traverse. It will take you the rest of your earthlife to do so. I am leaving this place because other emissaries will be on Calimat's trail before the end of the year. They will find a very cold trail here. The events of the morning's disaster will filter back to the Overseers on Casularix but they will most probably never discover the fusion cycle that burned out my pursuers. The 4000004 won't even be the same machine by then . . . it will have entirely new circuits, new housings, new devices. It might not even be in the same building. Earth has served me well. It will now become an effective dead end for any future pursuits."

I was amazed at her lack of concern for any of the damages done to the machine. "You just use anything you encounter to further your own plans. What about repairs? What about. . . ?" An image of Miss Cass began to take some shape out of the waning flashes of violet light. She wasn't quite the same. Her soft yellow aura was infused with red. Her edges were muted and fuzzy. I couldn't decide if I liked her more or liked her less. She seemed pudgy and slower. Her voice was tinny and I didn't quite believe her anymore.

"Even when you had a chance to escape my conscription, you applied yourself to my defense." Miss Cass was pulsing with a slow, deliberate rhythm. "The next energy flood will propel me into another spectrum. You are welcome to follow, astronomer. You have all the resources of Earth at your disposal. Discover the secrets of hyper-light and you can travel across the Galaxy and beyond. I am going

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now to seek my sisters out in the unincorporated regions of the Clouds."

I wasn't sure that joining Miss Cass was important to me. But the thought of travel throughout the realms of the nebulae was intoxicating. My head was lost in a dozen instant fantasies of the clouds . . . myriads of stars swarming through shapeless regions of space without center. The prospected implications of my sunspot data and associated researches seemed distant and remedial.

"Light," said Miss Cass. Her aura fluctuated and diminished. "Everything relies upon the light. Once you get it down about the light, you won't have to grub for coal. Can you imagine getting to the Moon on coal? All that rocket propellant isn't too many steps away from burning coal. You still burn something. Cave men burned logs, rocket men burn rocket fuel. You won't get out to the Clouds in a rocket, rocket man."

I had to admit that we still didn't know how a photon was generated nor very much about how light waves propagate. But we did actually get to the Moon on fossil fuel. And Mars would soon follow. Coal and oil and gas supplied the heat and light necessary for the planners and designers and dreamers to work by. The same electricity, generated by coal and oil had made it possible to release hydrogen and cool it down enough for containerization and thus use as a propellant. Coal and oil fired the furnaces that made steel possible, made titanium possible. We did go to the Moon on fossils.

I was about to defend our state of technology when Miss Cass phased into the niodimium laser spectrum, flashed through a series of light amplifiers and disappeared. The 4000004 shuddered and a thousand opticals fused. The electron cycle over-amped and the circuit breakers for thirty miles around blew out. The 4000004 was ruined. One hundred twenty-six million dollars melted down in a few milliseconds.

* * *

I was propelled out of the electrical secondary circuits via an outlet for the 220 line over the workbench in the Astral Data console room. It was the only line that hadn't fused in the big pulse that took Miss Cass away into a spectrum of light energy that I could only speculate about. A dozen questions of theoretical engineering formulated in my mind. I saw my other self seated calmly at the data console. I fixed my consciousness back down in my body and removed the headset that Miss Cass had fashioned and left behind. I wondered how many other pieces of hardware remained from her conscription of the system. My body was tense, and excess bioelectrical energy spasmed out of the

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left leg. I took a few deep breaths and opened my eyes. I could see molecular flashes in the dim blue light. I took another few breaths. The air had the heavy smell of ozone.

I could hear a welter of confused voices outside the door and rose from the console chair, taking the steps to the door very slowly and with a slight sense of vertigo. I opened the gray metal door and stepped out into the corridor. Several people were running toward the Laser Spectro Lab. I knew exactly what they would find.

A Junior fellow in the microbiology statistics group ran back down the corridor, passing me in full stride. "A young girl has been electrocuted in the laser lab! We've had a general blackout!" I couldn't tell from his glassy eyes whether he was happy with morbid excitement or terrified at the sight of a dead body.

And such a lovely body, too. The giant pulse that Cass had generated to propel her through the niodimium spectra and thence to her ultimate rendezvous with her sisters of light had left her soft husk partly charred. Her clothes were still smoking and the handspun Indian cotton blouse she had worn was sixty percent vaporized. My eyes fixed upon the long pink nipples of her breasts.

I cursed myself for not deciphering the raindrop code and kicked myself for being so narrow, so scientific as to think that such a code could only be related to the pursuits of knowledge. I was overcome by another flight of vertigo and had to sit down by the fire extinguisher in the corridor. Building maintenance men and a rescue squad from the gymnasium arrived. Almost a dozen men were peering at the dead form when the security investigators arrived.

All of them were staring at the lovely nipples and one long burned thigh.

No one was asking me questions. There was no reason to stay in the corridor, or even in the building. I went outside knowing that I would find no comfort at Clo's apartment. I made my way to the parking lot behind the dental research building and discovered my brown BMW sitting in my reserved spot. I knew the right side was battered in, but I didn't bother to look at it. Clo's note was taped to the steering wheel, just as I had seen in the video images Cass had shown to me. I knew what it said. There was no reason to read it over. I put it in the glove compartment for future reference, and started up the engine.

The only thing I could do was go home, home to the idle mountain sanctuary of my mountain observatory. I gave myself the advice not to leave the mountains for a very long time.

My Gemini glasses were on the dash tucked away securely in their titanium case. I took them out as I was driving along toward the main

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road leading into the valley. I drove steering with one hand for a long, long time, shifting a lot with the other hand, playing it off in my head like Phil Hill taking it in for a win through the last careful laps of his next-to-last race. Electronic music would come racing through my inner ear only to fade into tinkling laughter. Images of naked, dancing women appeared on several empty billboards.

The afternoon traffic was a frenzy . . . exactly the kind of traffic I try to avoid. The valley was humming with unusual excitement. The fast-food emporiums were jammed with honking automobiles. Hundreds of greasy children cavorted about the garbage receptacles. Fire engines and ambulances went past me at one intersection.

A few miles later, I was stopped by a roadblock set up by the Highway Patrol. When it came my turn to pass through the blockade, the officers looked at me with their inherent suspicion. One of them read every word on the BMW's inspection sticker out loud. Another checked my driver's license and asked me three times if my name was spelled correctly. Each time I replied that it was and finally asked, "What seems to be going on, officer? What is the matter this afternoon?"

The patrolmen moved mechanically like figures from a medieval clock tower. A younger, blond patrolman, obviously a hick rookie, squinted at me with his faded blue eyes. "We're askin' the questions here, mister. You just move along." I was happy to comply and wound the BMW out to the red line in every gear. I was hitting a hundred and twenty as I caught the Freeway that cut across the valley floor and then disappeared into the shadows of the mountains.

I crossed the flat arm basin in record time. I knew without a doubt that some of the Cassiopeian emissaries had survived the blowout. How could I be sure that they weren't on my trail? How would I ever know that they wouldn't come upon me in some distant night seeking revenge for my part in fusing their master, Calimat? Miss Cass had flashed away before I even knew who she was or what she stood for. She had left me in a state of complete confusion.

I drove off the last Freeway exit and floored the BMW, racing up into the hills catching every turn at maximum speed. Phil Hill or not, I was leaving all caution behind.

When I stopped the BMW the sun was just closing down on the western ridge of the mountains that lie across from the Observatory. The white buildings had taken on a mellow orange tinge and the shadows of the trees were edged in purple. Corweiller, the Chief Observer, was out by the parking lot tending his vari-colored roses. He was wearing blue overalls and his famous Swiss alpine glasses that had

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leather side-curtains attached to the gold frames. Corweiller never went outside without his Swiss alpine glasses.

I rarely speak to Corweiller socially and was therefore surprised when he waved at me with his garden shears. Soft humus and a few pieces of straw clung to his right knee. "Stop in for brandy at six, won't you?" he asked. The sudden request was unprecedented in our personal protocol. It was definitely an honor. Though he continued to speak to me I only half heard. My head was still buzzing with residual crystalline vibrations.

"We're taking the night off," Corweiller said. "Nemitz and Frier will be observing our watch for us." The sudden prospect of being replaced for the evening's watch made me wary. Perhaps I was losing my job. Budget cuts had been the subject of our most recent staff rumors. Corweiller must have sensed my uneasiness. I couldn't get a grip on the idea of Frier standing in at my position. The final rocks in my security base were crumbling. "Admiralty is coming aboard," Corweiller continued. I decoded that to mean that members of the Board of Regents were due in for an inspection tour. They always called for brandy with the Chief Observer.

I was having trouble speaking, but Corweiller kept right on talking to me in the most pleasant tone . . . "Arvin Dooze of the National Science Trust and V.V. Lansloe, Chief Regent, are meeting with me at five thirty. I would like you to meet them at six o'clock in my library. I think I may be moving on to a new position. Big southern hemisphere project in the wind. There is no reason why you shouldn't get in on it. It would be a step up, you know. We are very deficient in southern star data. It's quite a gap in the total spectrum of knowledge."

Threats, a replay from the dying images of the Cassiopeian emissaries, swept over me as Corweiller finished speaking. I saw myself in brief reflection from the other surfaces of his alpine glasses. I asked him, "How many light-years is it to alpha-Cassiopeia?"

He looked at me with vague curiosity. "Alpha-Cassiopeia? Rather elementary, isn't it?"

He gave me the correct figure and I said, "Yes, I shall certainly be in your library at six. If this new study is funded, I should imagine that a good deal of time would be occupied by the Clouds of Magellan."

The Chief Observer beamed with anticipation. "Exactly the reason for the new interest in southern hemisphere stars! The Clouds offer us a fabulous opportunity for the observation of near space."

I walked to the edge of the parking lot and looked away west into the canyon and across the deeper shadows there. The sun was just

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about to touch the far edge of Earth. I took off my Gemini glasses and gazed carelessly into the golden rays, into the brilliant globe itself. I had once read that Yogis claim to see into other worlds at this time each evening and also that some Indians of the Mexican desert claim the twilight to be a crack between worlds that their men of power glide through on their travels to see the Spirits.

I blinked my eyes three or four times and began to feel somewhat like the wilted, dead peonies that I had thought about the night before during the Robert Flaherty film. I could see the peonies in my grandmother's garden amid the flatlands of Illinois. That garden was a power spot for me. I felt my head grow large and leafy.

I let the sunlight flood my cautious eyes and stood there at the edge of the world with my giant peony head looking out beyond light for the Overseers of Casularix. I dared their emissaries to come through and confront me. I had a comfortable feeling that Corweiller was with me, standing behind me high in the air above the Earth. His dark glasses sparked with many rainbows. His form was clothed in blue overalls and he held a galvanized watering can in his right hand. . . .

Laughter shook the ruffled petals of my peony head. I knew that quite soon I would be in the southern stars looking out toward the Clouds of Magellan. ★

VARIATIONS IN THE VISIBLE SPECTRA

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A SPACE ODDITY.....

TAKE MY MATE,

PLEASE by Andrew Ross

In the beginning was the chuckle. . .

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BRUCE WAS making his way back to his cave, cautiously poking the underbrush ahead of him with a stick as he worked his way through the thick bushes, dangling vines and low branches that made up his jungle habitat. As he paused momentarily in the middle of a patch of large bushes to sample a leaf, chewing on it slowly, savoring its taste, a rustling sound to his right startled him. He promptly dropped to the ground and quivered. The dead rabbit he'd been carrying lay disregarded some yards behind him where he had convulsively hurled it.

While Bruce lies cowering in abject terror, let us consider his more general plight—Bruce was a caveman. Actually, his name wasn't "Bruce": he didn't really have a name. Those who shared his cave with him thought of him variously as Tall-One-With-Big-Stick, He-Who-Beats-Me, and Meat-Bringer. We'll call him Bruce.

Bruce was a giant among cavemen, towering over five feet tall. He had a massive barrel chest, arms that hung to his knees, and a hairiness overall that aspired to but did not quite merit being called furry. He was by far the strongest in his cave, but what mainly distinguished Bruce from the other beasts of the jungle was the gleam of latent intelligence lurking in his eyes.

Back to Bruce, as he lay fetally curled with his arms covering his head, awaiting the fatal attack. After a while, no claws having ripped his back open, Bruce tentatively lifted his head and looked around; false alarm.

After several moments spent gathering the shreds of his nerve Bruce arose and cast about for the rabbit he'd accidentally flung away. He found it atop an ant hill and brushed off most of the ants. Stick in one hand, rabbit in the other, he recommenced his journey.

Two hours later, as the sun was setting, Bruce and the others were gathered together about a cozy fire at the entrance to the cave, ripping at the now-charred rabbit, snarling over it as if they were starving—which they were. Which they *always* were.

Impulsively, Bruce's mate reached for the piece that Bruce had reserved for himself. Quick as a flash, Bruce grabbed her outstretched arm and bit it. As his mate's piteous moans slowly subsided into silence the only sound to be heard was the peaceful munching and grunting of famished cavemen.

* * *

Meanwhile, three hundred miles above, a spaceship orbited. Inverted cup on a flat saucer; no visible rocket exhausts or other means of propulsion; shimmering electric-orange lights; a row of windows circling the base of the upside-down cup: it

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was a standard UFO, little different in appearance from those that would appear in the skies of Earth a few million years hence piloted by an entirely different race.

Looking out of one of those windows at the blue-green planet below was Loquar, the ship's First Officer. He looked like grape jello with a chopped-fruit filling. Behind him was the Captain, who, as befitted his rank, looked more like cherry.

"It's a beautiful planet," Loquar mused.

"It certainly is," the Captain, picking up Loquar's thought, replied. "Too bad about those preverbal primates down there. Damned odd how they haven't made any progress."

"How long has it been since the last visit?"

"Over 24,000 of their years," was the Captain's telepathic response.

"Well, at least they're still here."

"According to Survey, there are fewer of them than last time. By the time of our next visit they may well be extinct."

Loquar flowed across the deck to a large dish and settled into it. "What's holding them back?"

No one knows. They have opposable pseudoextensors with good dexterity, and they have several hundred ccs. of cranial capacity. It's a mystery."

Loquar cogitated for a moment before thinking ingenuously at his Captain: "So what are we going to do?"

The Captain was so alarmed by this question that he turned completely transparent. Pseudopods rippling spastically he mentally roared: "DO? We're not going to *do* anything. We're going to leave them strictly alone, *as per regulations*. You know we're not allowed to interfere in any way with a potentially civilized species! We can't even let them know we exist! It might warp their development incalculably."

"If we don't do something, they won't have any development to warp," Loquar replied. "And with just the tiniest push they could make it. They've got all that it takes."

"Obviously not *all*," came the sarcastic rejoinder.

"Well, no, not all. But that's all the more reason to help them. They're really close, and it could make all the difference. I know we could help them."

"Nothing doing. I retire after two more missions, and there's no way I'm going to lose my pension so you can play nursemaid to a bunch of under-performing apemen."

As the spaceship swung around the small planet Loquar projected eloquent thoughts of a thriving intelligent race that might one day reach out and join the confraternity of beings who held sway between the stars. The Captain argued for

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his cottage by the beach. The saucer and the argument continued to orbit the planet until, finally, a compromise was reached: "Ok, but what can you possibly do to help them in one-eighteenth of a planetary revolution?"

"I'll think of something," Loquar projected spiritedly.

* * *

Loquar stood in the clearing looking down at himself with more than a little revulsion. Instead of his body flowing gracefully from place to place in its normal manner he had to separately operate two grotesquely rigid lower appendages while simultaneously performing a balancing act with the rest of his body mass. Clumsily he began to practice walking around in a circle, learning to coordinate his new body. As he walked he thought about how fortunate it was that his wife couldn't see him in his present condition.

Satisfied at last that he had achieved some degree of mobility, Loquar considered what to do next; he still had not decided just what he was going to do to help the natives in their fight for survival.

Whatever he did had to be doable without technical devices of any kind. Nor was he allowed to leave any evidence that the primates had received assistance. The Captain was angry enough at him for talking him into endangering his pension by letting Loquar make the trip. Loquar was quite certain that if he so much as gently bent the smallest regulation in a detectable way the Captain would have him fibulated on the spot.

As Loquar was thinking these thoughts the obvious happened: Bruce and Loquar met. After catching his first glimpse of him, Bruce had ducked behind a tree and was observing Loquar with considerable interest. As he watched the incredibly clumsy and unarmed stranger stumble about in circles Bruce made his decision. The stranger would be good to eat.

Bruce emerged into the clearing. Stick raised, he edged towards Loquar. Loquar watched Bruce nervously stalk him. When Bruce had finally got up his nerve to strike, Loquar reached out. Suddenly Bruce stood transfixed, unable to so much as twitch as Loquar dove beneath the surface of his mind.

Calmly Loquar examined Bruce's past, reviewed the images of his life: the campfires, the hunts, the cave, the everpresent vermin. At last he pulled his mind back, glad to be out of Bruce's head.

"Not even a nice place to visit," he thought to himself.

Tired from standing so long, Loquar clumsily seated himself and made Bruce do likewise opposite him. He felt stymied. If he couldn't think of a way to help Bruce, the natives of this planet were probably

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doomed. And, aside from the regulations, given the amount of time he had left that help would have to take the form of a message.

"But what," he wondered, "can I say to a creature whose entire mental equipment is invested in thoughts of ingestion, protection and erection?"

Suddenly Loquar's cogitations were interrupted by the Captain. "Haven't you finished yet?"

"No," Loquar grumbled. "I need more time."

"Ten more minutes. Then I want you back up here, done or not."

"All right."

Loquar thought for a minute. He looked at Bruce, the apish face drawn in terror, the muscles tensed, straining to move. Suddenly Loquar was inspired. He projected a thought into Bruce's mind.

Bruce was puzzled. His brow furrowed and his head tilted. Then the corners of his mouth turned up, his lips stretched. Bruce made a noise, a harsh guttural sound coming from deep in his throat. He chuckled again, awkwardly and a little louder. A laugh burst from his throat. The first laugh in the history of the planet. It tumbled out, louder and faster. Bruce began to shake from the intensity of it.

Loquar stood up. He released Bruce from his mental bonds, then stumbled off into the jungle and vanished as Bruce continued to laugh.

Bruce lay on the ground and beat at it with his fists, roaring hysterically.

Eventually Bruce sat up and wiped his eyes. Still chuckling, he stood up and began to walk back towards the cave. Every so often he would burst into laughter again and the animals nearby would flee from the strange noise.

* * *

Aboard the spaceship a crew member was helping Loquar out of his caveman suit. As he slit the suit open Loquar spilled onto the deck.

"Oh, that feels good. It's murder standing upright like that."

"The Captain wants to see you immediately."

"That figures."

Loquar headed towards the Bridge. The crew member thought after him, "What do I do with this thing?"

"Burn it."

Loquar found the Captain flowing nervously back and forth. The Captain turned to him. "Did you do anything that will get us in trouble?"

"No."

"That's good. My wife would have killed me if this cost us our beach house."

Loquar chuckled softly.

The Captain asked, "So what did you do to help them?"

"I told one of them an old joke."

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The Captain looked at him blankly.

Loquar flowed to the window and looked down at the rapidly diminishing world. As the ship fled the solar system, leaving Earth once again alone in the darkness of space, Loquar explained . . . .

* * *

Bruce and the others were seated around the fire, squabbling over the remains of the small wild pig that Bruce had caught. Suddenly a bolt of lightning flashed nearby, followed by a bellow of thunder. They all jumped up and ran to the back of the cave.

When nothing else happened Bruce slowly emerged from the darkness. He looked back at the others still shivering in the back and began to chuckle. Soon he was laughing uproariously. The others, frightened by this strange sound, refused to emerge. Bruce continued to laugh as he seated himself near the fire.

Finally, Bruce's laughter having died down to an occasional chuckle, the others edged back to the fire, watching Bruce warily.

Still chuckling, Bruce, Father of Humor on Earth, tried to figure out a way to explain what was so funny. ★

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THE DOSADI EXPERIMENT

by FRANK HERBERT

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PART III OF IV

WHAT HAS GONE BEFORE

Keila Jedrik, a Human female of the planet Dosadi, has shed her false persona as a minor bureaucrat to concentrate on her role as warlord. Her purpose is to free Dosadi from imprisonment behind the barrier 'God Wall' which dims its sun and isolates it from the rest of the universe.

Dosadi's two sentient species, the frog-like Gowachin and the Humans, are descended from a memory-erased population which volunteered for a secret long-term psychological experiment. The descendants learned early that they were puppets in a contrived hell, its plants and animals poison to both Human and Gowachin unless raised in hydroponic isolation. Dosadis know mostly their city of Chu where food is relatively pure and the surrounding Rim where people live short, violent lives in a teeming scramble for admittance to the city. They do not know about the federated planets of the ConSentiency beyond their God Wall.

Keila Jedrik, bred and trained to break this bondage, sets a race war into motion as other forces muster beyond the planetary barrier. There, the ConSentiency's Bureau of Sabotage (a sophisticated ombudsman-like ministry) has learned of Dosadi's existence but not its location. BuSab knows only that unidentified Gowachin hired a Caleban to imprison Dosadi's people.

Calebans are one of the great "useful mysteries." They are visible stars in the ConSentient universe and provide the federation with jumpdoors through which one can pass in a single step from planet to planet. Some believe Calebans are part of the Taprisiot phenomenon. The stubby, log-like Taprisiot people provide mind-to-mind communication across the parsecs.

BuSab Agent Jorj X. McKie, a Human who is friendly with a Caleban calling herself Fannie Mae, gets the Dosadi assignment from his Bureau Chief, Bildoon, who is a PanSpechi, member of a species which apes Human form but passes one ego from person to person in a crèche-family.

Summoned to the Gowachin home planet, Tandaloor, place of their mythological progenitor, Mrreg, McKie is confronted by Aritch, High Magister of the most powerful Gowachin Phylum, and by a deadly Wreave female named Ceylang, representative of another ConSentient species which is famed for ability to understand alien behavior. If McKie offends her, he risks vendetta with Ceylang's gigantic extended family. Ceylang is being trained by the Gowachin as a Legum, an adept in Gowachin Law. McKie is the only living non-Gowachin who holds Legum status.

Forced to become Aritch's Legum, McKie accepts the Phylum's sacred box containing a book, a knife and a rock—symbols of Gowachin Law. This is a complex legal structure where the life of any person entering the Courtarena may be forfeit. After McKie frustrates an attack by Ceylang, these facts emerge:

Dosadi's imprisoned millions are increasingly immune to memory erasure and are, in Gowachin eyes, "monstrous."

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A quasi-religious government under a Dosadi Gowachin Elector named Broey rules the imprisoned planet.

Anything is for sale on Dosadi—secrets, bodies, temporary protection, food, armies . . .

Among Broey's aides are two Humans, the Warlord Gar and Gar's daughter, Tria, who secretly plot to build another city on Dosadi in defiance of their religious mandate.

Jedrik's chauffeur, a Human named Havvy, tells her that a Jorj X. McKie is being sent as a Rim infiltrator, and that he comes from beyond the God Wall. Jedrik already knew this through her own espionage network. She sees McKie as her key to breaking through the God Wall but, unknown to her, McKie brings with him the dangerous tools and weapons of his agency employment plus a Taprisiot linkage which, should he be killed, is intended to provide BuSab with all data he has gathered to that point.

Jedrik relies on her own capabilities, including a mental simulation model of each person she must dominate to free Dosadi. She can anticipate Broey's actions. She knows that Havvy is a non-Dosadi, but he came to her flawed, useless against the God Wall. She sees Havvy and other non-Dosadis as dolts, often dangerous but susceptible to being baited and trapped. McKie is walking into her trap.

Arriving in Chu after a hair-raising ride in an armored vehicle through Rim battlegrounds, McKie sees almost immediately that Dosadi is not what Aritch had led him to expect. Aritch had said that Dosadi was an attempt to create a population resistant to mediocrity imposed from above, arguing that ancestors always volunteer their descendants for whatever happens and without the informed consent of the descendants. He says that one of Dosadi's 'test subjects' will destroy this 'monster' even if the Gowachin do not.

McKie wonders if Dosadi might be a convoluted attempt to make Gowachin Law the basis for all ConSentient Law. Gowachin distrust law, saying it injures societies. They seek ways to disarm or remove law when problems arise. Gowachin distrust any community of professionals, especially legal professionals. The highest use of Gowachin Law is to dissolve old law while applying justice. McKie realizes the Gowachin trained him to solve their Dosadi dilemma, but he knows that Gowachin are so ultimately civilized they have come full circle into a form of primitive savagery. There's no easy way out of his predicament: to fulfill his Legum oath and serve his BuSab agency he must experience this Dosadi 'monster' with his own flesh. Many unanswered questions plague him.

Why have Dosadi Humans taken on Gowachin characteristics and vice versa. The species cannot interbreed. Why are Gowachin training a Wreave?

While waiting for his first contact on Dosadi, McKie has tried to call his Caleban friend, Fannie Mae. She warns him that soon he may not be able to leave the planet in his own "body/node." She warns him also that a contract prevents her from helping him in ways he has asked.

Meanwhile, Elector Broey talks to the Caleban who acts as the God of the Heavenly Veil to imprison Dosadi and he learns that McKie is coming.

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Praying in a cell beneath his graluz breeding pool, Broey hides some of his thoughts from the Caleban guardian. "God uses people; people use God." He is deeply aware of the graluz pool above him where Gowachin males hunt down and devour their newborn tads—testing almost to extinction.

While the Human vs. Gowachin war grows hotter as Jedrik intended, Broey's Human aide, Tria, leads a commando raid to try capturing Jedrik. The raid fails and Tria's agent is killed in a way that suggests Gowachin ritual murder.

Broey returns to his headquarters after a fruitless questioning of the battlewagon driver who brought McKie into Chu. Broey tries to dismiss Gar and Tria, but Gar reveals that he is building a Rim City and that he has a secret force of Rim-born fanatics. With race war almost out of control, Broey has little choice but to agree to keep Gar and Tria in positions of power. However, he mounts a massive campaign to find the *blasphemous* Rim City with its store of non-poisonous foods. Broey realizes he is behaving precisely as Jedrik wants but has no choice.

McKie, having made secret rendezvous with Jedrik, is shocked by her brutality and her casual revelation that she knows he comes from beyond the God Wall. She confiscates his wallet of dangerous tools even though he warns her that it is booby-trapped. An aide takes away the wallet and returns uninjured with the wallet open, its contents available. McKie begins to understand Aritch's judgement about the Dosadis and realizes that survival here requires him to become as ruthless as any Dosadi.

Jedrik takes McKie to her headquarters after detecting "real intelligence" in him. She wonders why he never sharpened that intelligence. At her headquarters is a cage confining an aged Gowachin male, Pcharky. She tells McKie there's no counting the number of people Pcharky has helped escape from Dosadi, adding: "Soon, I may persuade him to be of service to me."

Seeing the terrible energies shimmering on the bars of Pcharky's cage, McKie wonders if Dosadi may be an investigation of the Caleban mystery. Jedrik gives him no time to investigate this. She takes him to her room where she makes violent love to him, all the time watching, reading him. Afterward, she accuses him of trying to catch her with softness. McKie decides she's insane, but she won't let him sleep, questioning him, demanding he tell about male-female relationships 'outside.'

Back on Tandaloor, Aritch meets with Ceylang who says that soon McKie will be more Dosadi than the Dosadis. Aritch warns Ceylang that she must learn McKie as though she lived "in his skin," adding that McKie is capable of defeating her in such a way that "your Wreave universe would shower him with adulation for his victory." This depends, of course, Aritch says, on whether McKie survives Dosadi.

"Their law! It is a dangerous foundation for non-authentic traditions. It is no more than a device to justify false ethics!"

—Gowachin comment on ConSentient Law

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WHILE THEY DRESSED in the dim dawn light coming through the single window, McKie began testing what Jedrik meant by being his teacher.

"Will you answer any question I ask about Dosadi?"

"No."

Then what areas would she withhold from him? He saw it at once: those areas where she gained and held personal power.

"Will anyone resent it that we . . . had sex together?"

"Resent? Why should anyone resent that?"

"I don't . . ."

"Answer my question!"

"Why do I have to answer your every question?"

"To stay alive."

"You already know everything I . . ."

She brushed this aside.

"So the people of your ConSentiency sometimes resent the sexual relationships of others. They are not sure, then, how they use sex to hold power over others."

He blinked. Her quick, slashing analysis was devastating.

She peered at him.

"McKie, what can you do here without me? Don't you know yet that the ones who sent you intended you to die here?"

"Or survive in my own peculiar way."

She considered this. It was another idea about McKie which she had put aside for later evaluation. Indeed, he might well have hidden talents which her questions had not yet exposed. What annoyed her now was the sense that she didn't know enough about the ConSentiency to explore this. Could not take the time right now to explore it. His response disturbed her. It was as though everything she could possibly do had already been decided for her by powers of which she knew next to nothing. They were leading her by the nose, perhaps, just as she led Broey . . . just as those mysterious Gowachin of the ConSentiency obviously had led McKie . . . poor McKie. She cut this short as unprofitable speculation. Obviously, she had to begin at once to search out McKie's talents. Whatever she discovered would reveal a great deal about his ConSentiency.

"McKie, I hold a great deal of power among the Humans and even among some Gowachin in the Warrens . . . and elsewhere. To do this, I must maintain certain fighting forces, including those who fight with physical weapons."

He nodded. Her tone was that of lecturing to a child, but he accepted this, recognizing the care she took with him.

"We will go first," she said, "to a nearby training area where we maintain the necessary edge on one of my forces."

Turning, she led him out into the hall and down a stairway which avoided the room of the cage. McKie was reminded of Pcharky, though, thinking about that gigantic expenditure of space with its strange occupant.

"Why do you keep Pcharky caged?" he asked, addressing Jedrik's back.

"So I can escape."

She refused to elaborate on this odd answer.

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Presently, they emerged into a courtyard nestled into the solid walls of towering buildings. Only a small square of sky was visible directly overhead and far away. Artificial lighting from tubes along the walls provided an adequate illumination. It revealed two squads facing each other in the center of the courtyard. They were Humans, both male and female; all carried weapons—a tube of some sort with a wandlike protrusion from the end near their bodies. Several other Humans stood at observation positions around the two squads. There was a guard station with a desk at the door through which McKie and Jedrik had emerged.

"That's an assault force," Jedrik said, indicating the squads in the courtyard. She turned and consulted with the two young men at the guard station.

McKie made a rough count of the squads: about two hundred. It was obvious that everything had stopped because of Jedrik's presence. He thought the force was composed of striplings barely blooded in Dosadi's cruel necessities. This forced him to re-evaluation of his own capabilities.

From Jedrik's manner with the two men, McKie guessed she knew them well. They paid close attention to everything she said. They, too, struck him as too young for responsibility.

The training area was another matter. It bore a depressing similarity to other such facilities he'd seen in the backwaters of the ConSentiency. War games were a constant lure among several species, a lure which BuSab had managed thus far to channel into such diversions as weapons fetishes.

Through the omnipresent stink, McKie smelled the faint aroma of cooking. He sniffed.

Turning to him, Jedrik spoke:

"The trainees have just been fed. That's part of their pay."

It was as though she'd read his mind and now she watched him for some reaction.

McKie glanced around the training area. They'd just been fed here? There wasn't a scrap or crumb on the ground. He thought back to the restaurant, belatedly aware of a fastidious care with food that he'd seen and passed right over.

Again, Jedrik demonstrated the ease with which she read his reactions, his very thoughts.

"Nothing wasted," she said.

She turned away.

McKie looked where her attention went. Four women stood at the far side of the courtyard, weapons in their hands. Abruptly, McKie focused on the woman to the left, a competent looking female of middle years. She was carrying a . . . it couldn't be, but . . .

Jedrik headed across the courtyard toward the woman. McKie followed, peered closely at the woman's weapon. It was an enlarged version of the pentrate from his kit! Jedrik spoke briefly to the woman.

"Is that the new one?"

"Yes. Stiggy brought it up this morning."

"Useful?"

"We think so. It focuses the explosion with somewhat more concentration than our equipment."

"Good. Carry on."

There were more training cadre

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near the wall behind the women. One, an older man with one arm, tried to catch Jedrik's attention as she led McKie toward a nearby door.

"Could you tell us when we . . ."

"Not now."

In the passage beyond the door, Jedrik turned and confronted McKie.

"Your impressions of our training? Quick!"

"Not sufficiently versatile."

She'd obviously probed for his most instinctive reaction, demanding the gut response unmonitored by reason. The answer brought a glowering expression to her face, an emotional candor which he was not to appreciate until much later. Presently, she nodded.

"They are a commando. More functions of a commando should be interchangeable. Wait here."

She returned to the training area. McKie, watching through the open door, saw her speak to the woman with the pentrate. When Jedrik returned, she nodded to McKie with an expression of approval.

"Anything else?"

"They're awfully damned young. You should have a few seasoned officers among them to put a rein on dangerous impetuosity."

"Yes, I've already set that in motion. Hereafter, McKie, I want you to come out with me every morning for about an hour. Watch the training but don't interfere. Report your reactions to me."

He nodded. Clearly, she considered him useful and that was a step in the right direction. But it was an idiotic assignment. These violent infants possessed weapons which could make Dosadi uninhabitable. There was an atavistic excitement in the situation, though. He couldn't deny that. Something in the Human psyche responded to mass violence . . . really, to violence of any sort. It was related to Human sexuality, an ancient stirring from the most primitive times.

Jedrik was moving on, however.

"Stay close."

They were climbing an inside stairway now and McKie, hurrying to keep up, found his thoughts locked on that pentrate in the hands of one of Jedrik's people. The speed with which they'd copied and enlarged it dazzled him. It was another demonstration of why Aritch feared Dosadi.

At the top of the stairs, Jedrik rapped briefly at a door. A male voice said: "Come in."

The door swung open and McKie found himself presently in a small unoccupied room with an open portal at the far wall into what appeared to be a larger, well lighted area. Voices speaking so softly as to be unintelligible came from there. A low table and five cramped chairs occupied the small room. There were no windows, but a frosted overhead fixture provided shadowless illumination. A large sheet of paper with colored graph lines on it covered the low table.

A swish of fabric brought McKie's attention to the open portal. A short, slender woman in a white smock, grey hair and the dark, penetrating stare of someone accustomed to command, entered followed by a slightly taller man in the same white. He looked older

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than the woman except that his hair remained a lustrous black. His eyes, too, held that air of command. The woman spoke.

"Excuse the delay, Jedrik. We've been changing the summation. There's now no point where Broey can anticipate and change the transition from riots to full-scale warfare."

McKie was surprised by the abject deference in her voice. This woman considered herself to be far below Jedrik. The man took the same tone, gesturing to chairs.

"Sit down, please. This chart is our summation."

As the woman turned toward him, McKie caught a strong whiff of something pungent on her breath, a not unfamiliar smell. He'd caught traces of it several times in their passage through the Warrens. She went on speaking as Jedrik and McKie slipped into chairs.

"This is not unexpected." She indicated the design on the paper.

The man intruded.

"We've been telling you for some time now that Tria is ready to come over."

"She's trouble," Jedrik said.

"But Gar . . ."

It was the woman, arguing, but Jedrik cut her off.

"I know: Gar does whatever she tells him to do. The daughter runs the father. He thinks she's the most wonderful thing that ever happened, able to . . ."

"Her abilities are not the issue," the man said.

The woman spoke eagerly.

"Yes, it's her influence on Gar that . . ."

"Neither of them anticipated my moves," Jerik said, "but I anticipated their moves."

The man leaned across the table, his face close to Jedrik's. He appeared suddenly to McKie like a large, dangerous animal—dangerous because his actions could never be fully predicted. His hands twitched when he spoke.

"We've told you every detail of our findings, every source, every conclusion. Now, are you saying you don't share our assessment of . . ."

"You don't understand," Jedrik said.

The woman had drawn back. Now, she nodded.

Jedrik said:

"It isn't the first time I've had to reassess your conclusions. Hear me: Tria will leave Broey when she's ready, not when he's ready. It's the same for anyone she serves, even Gar."

They spoke in unison:

"Leave Gar?"

"Leave anyone. Tria serves only Tria. Never forget that. Especially don't forget it if she comes over to us."

The man and woman were silent.

McKie thought about what Jedrik had said. Her words were another indication that someone on Dosadi might have other than personal aims. Jedrik's tone was unmistakable: she censured and distrusted Tria because Tria served *only* selfish ambition. Therefore Jedrik (and this other pair by inference) served some unstated mutual purpose. Was it a form of patriotism they served, species oriented? BuSab agents were always alert for this dangerous form of tribal madness, not neces-

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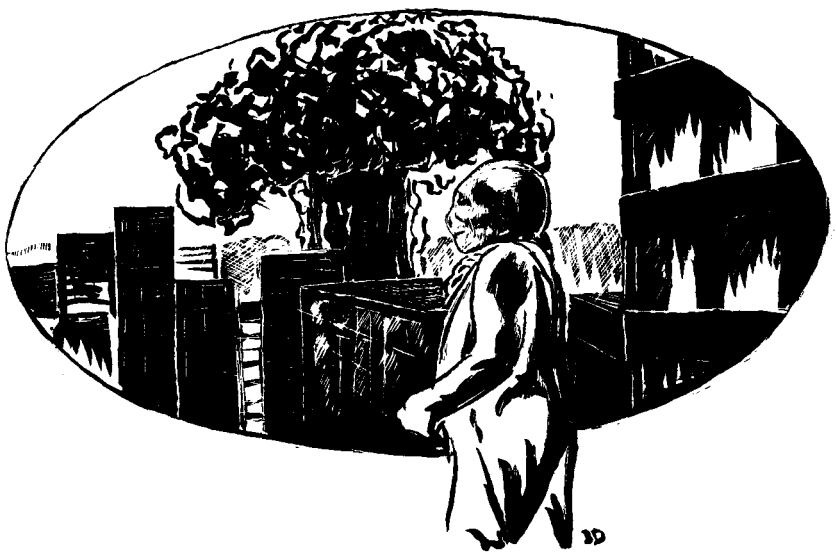

sarily to suppress it, but to make certain it did not explode into a violence deadly to the ConSentiency.

The white-smocked woman, after mulling her own thoughts, spoke:

"If Tria can't be enlisted for . . . what I mean is we can use her own self-serving to hold her." She corrected herself. "Unless you believe we cannot convince her we'll overcome Broey." She chewed at her lip, a fearful expression in her eyes.

A shrewd look came over Jedrik's face.

"What is it you suspect?"

The woman pointed to the chart on the table.

"Gar still shares in the major decisions. That shouldn't be, but it is. If he . . ."

The man spoke with subservient eagerness.

"He has some hold on Broey!"

The woman shook her head.

"Or Broey plays a game other than the one we anticipated."

Jedrik looked at the woman, the man, at McKie. She spoke as though to McKie, but McKie realized she was addressing the air.

"It's a specific thing. Gar has revealed something to Broey. I know what he's revealed. Nothing else could force Broey to behave this way." She nodded at the chart. "We *have* them!"

The woman ventured a question.

"Have we done well?"

"Better than you know."

The man smiled, then:

"Perhaps this is the time to ask if we could have larger rooms. The damn' children are always moving the furniture. We bump . . ."

"Not now!"

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Jedrik arose. McKie followed her example.

"Let me see the children," Jedrik said.

The man turned to the open portal.

"Get out here, you! Jedrik wants you!"

Three children came scurrying from the other room. The woman didn't even look at them. The man favored them with an angry glare. He spoke to Jedrik.

"They've brought no food into this house in almost a week."

McKie studied the children carefully as he saw Jedrik was doing. They stood in a row just inside the room and, from their expressions it was impossible to tell their reaction to the summons. They were two girls and a boy. The one on the right, a girl, was perhaps nine; on the left, another girl, was five or six. The boy was somewhat older, perhaps twelve or thirteen. He favored McKie with a glance. It was the glance of a predator who recognizes ready prey but who already has eaten. All three bore more resemblance to the woman than to the man, but the parentage was obvious: the eyes, the set of the ears, nose . . .

Jedrik had completed her study. She gestured to the boy.

"Start sending him to the second training team."

"About time," the woman said. "We'll be glad to get him out of here."

"Come along, McKie."

In the hall, Jedrik said:

"To answer your question, they're pretty typical."

McKie, who had only wondered silently, swallowed in a dry throat. The petty goals of these people: to get a bigger room where they could live without bumping into furniture. He'd sensed no affection for each other in that couple. They were companions of convenience. There had been not the smallest hint of emotion for each other when they spoke. McKie found it difficult to imagine them making love, but apparently they did. They had produced three children.

Realization came like an explosion in his head. Of course they showed no emotion! What other protection did they have? On Dosadi, anything you cared for was a club to beat you into somebody else's line. And there was another thing.

McKie spoke to Jedrik's back as they went down the stairs.

"That couple . . . they're addicted to something."

Surprisingly, Jedrik stopped, looked back up at him.

"How else do you think I hold such a pair? The substance is called *dis*. It's very rare. It comes from the far mountains, far beyond the . . . far beyond. The Rim sends parties of children as bearers to obtain *dis* for me. In a party of fifty, thirty can expect to die on such a trek. Do you get the measure of it, McKie?"

Once more, they headed down the stairs.

McKie, realizing she'd taken the time to teach him another lesson about Dosadi, could only follow, stunned, while she led him into a room where technicians bleached the sun-darkened areas of his skin.

When they emerged, he no longer

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carried the stigma of Pylash Gate.

* * *

QUESTION: Who governs the governors?
ANSWER: Entropy.

—Gowachin Riddle

"It is no longer classifiable as rioting," the aide said.

He was a short Gowachin with pinched features and he looked across the room to where Broey sat facing a dead communicator. There was a map on the wall behind the aide, its colors made brilliant by harsh morning light coming in the east windows. Below the map, a computer terminal jutted from the wall. Occasionally, it clicked.

Gar came into the room from the hall, peered around as though looking for someone, left.

Broey noted the intrusion, glanced at the map.

"Still no sign of where she's gone to ground?"

"Nothing certain."

"The one who paraded McKie through the streets . . ."

"Clearly an expendable underling."

"Where did they go?"

The aide indicated a place on the map, a group of buildings in the Warrens to the northwest.

Broey stared at the blank face of his communications screen. He'd been tricked again. He knew it. That damnable Human female! Violence in the city teetered on the edge of full scale war: Gowachin against Human. And still nothing, not even a hint at the location of Gar's Rim stores, the blasphemous factories. It was an unstable condition which could not continue much longer.

His communications screen came alive with a report: violent fighting near Gate Twenty-One. Broey glanced at the map. That made it more than one hundred clearly defined battles between the species along an unresolved perimeter. The report spoke of new weapons and unsuccessful attempts to capture specimens.

Gate Twenty-One?

That wasn't far from the place where McKie had been paraded through . . .

Several things slipped into a new relationship in Broey's mind. He looked at his aide who stood waiting obediently at the map.

"Where's Gar?"

Aides were summoned, sent running. Gar was not to be found.

"Tria?"

She, too, was unavailable.

Gar's fanatics remained neutral, but more of Jedrik's pattern was emerging. Everything pointed to an exquisite understanding of the weaknesses implicit in the behavior of Gar and Tria.

And I thought I was the only one who saw that!

Broey hesitated.

Why would the God not speak to him? Other than to say "I am watched."

Broey felt tricked and betrayed in his innermost being. This had a cleansing effect on his reason. He could only depend on himself. And he began to sense a larger pattern in Jedrik's behavior. Was it possible

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that Jedrik shared *his* goals? The possibility excited him.

He looked at the aides who'd come running with the negative information about Gar and Tria, began to snap orders.

"Get our people out of all those Warrens except that corridor to the northeast. Reinforce that area. Everyone else fall back to the secondary walls. Let no Humans inside that perimeter. Block all gates. Get moving!"

This last was shouted as his aides hesitated.

Perhaps it already was too late. He realized now that he'd allowed Jedrik to bait and distract him. It was clear that she'd created in her mind an almost perfect simulation model of Broey. And she'd done it from a Liaitor position! Incredible. He could almost feel sorry for Gar and Tria. They were like puppets dancing to Jedrik's strings.

I was no better.

It came over him that Jedrik's simulation probably encompassed this very moment of realization. Admiration for her permeated him.

Superb!

Quietly, he issued orders for the sequestering of Gowachin females within the inner graluz bastions which he'd had the foresight to prepare. His people would thank him.

Those who survived the next few hours.

* * *

Given the proper leverage at the proper point, any sentient awareness may be exploded into astonishing self-understanding.

—from an ancient Human mystic

By the third morning McKie felt that he might have lived all of his life on Dosadi. The place demanded every element of attention he could muster.

He stood alone in Jedrik's room, staring absently at the unmade bed. She expected him to put the place in order before her return. He knew that. She'd told him to wait here and had gone away on urgent business. He could only obey.

Concerns other than an unmade bed distracted him, though. He felt now that he understood the roots of Aritch's fears. The Gowachin of Tandaloor might very well destroy this place even if they knew that by doing so they blasted open that bloody region where every sentient hid his most secret fears. He could see this clearly now. How the Running Phylum expected him to avoid that monstrous decision was a more elusive matter.

There were secrets here.

McKie sensed Dosadi like a malignant organism beneath his feet, jealously keeping those secrets from him. This place was the enemy of the ConSentiency, but he found himself emotionally siding with Dosadi. It was betrayal of BuSab, of his Legum oath, everything . . .but he could not prevent that feeling or recognition of it. In the course of only a few generations, Dosadi had become a particular thing. Monstrous? Only if you held to your own precious myths. Dosadi might be the greatest cleansing force the ConSentiency had ever experienced.

The whole prospect of the Con-

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Sentiency had begun to sicken him. And Aritch's Gowachin. Gowachin Law? Stuff Gowachin Law!

It was quiet in Jedrik's room. Painfully quiet.

He knew that out on the streets of Chu there was violent warfare between Gowachin and Human. Wounded had been rushed through the training courtyard while he was there with Jedrik. Afterward, she'd taken him to her command post, a room across the hall and above Pcharky's cage. He'd stood nearby, watched her performance as though she were a star on an entertainment circuit and he a member of the audience. It was fascinating. Broey will do this. Broey will give that order. And each time, the reports revealed how precisely she had anticipated her opponent.

Occasionally, she mentioned Gar or Tria. He was able to detect the subtle difference in her treatment of that pair.

On their second night together, Jedrik had aroused his sexual appetites softly, deftly. She had treated him to a murmurous compliance and afterward had leaned over him on an elbow to smile coldly.

"You see, McKie: I can play your game."

Shockingly, this had opened an area of awareness within him which he'd not even suspected. It was as though she'd held up his entire previous life to devastating observation.

And *he* was the observer!

Other beings formed lasting relationships and operated from a secure emotional base. But he was a product of BuSab, the Gowachin . . . and much that had gone before. It had become increasingly obvious to him why the Gowachin had chosen him to groom for this particular role.

I was damaged and they could rebuild me the way they wanted!

Well, the Gowachin could still be surprised by what they produced. Dosadi was evidence of that. They might not even suspect what they'd actually produced in McKie.

He was bitter with a bitterness he knew must've been fermenting in him for years. The loneliness of his own life with its central dedication to BuSab had been brought to a head by the loneliness of this imprisoned planet. An incredible jumble of emotions had sorted themselves out and he felt new purpose burning within him.

Power!

Ahhhh . . . that was how it felt to be Dosadi!

He'd turned away from Jedrik's cold smile, pulled the blankets around his shoulder.

Thank you, loving teacher.

Such thoughts roamed through his mind as he stood alone in the room the following day and began to make the bed. After her revelation, Jedrik had resumed her interest in his memories, napping only to awaken him with more questions.

In spite of his sour outlook, he still felt it his duty to examine her behavior in every possible light his imagination could produce. Nothing about Dosadi was too absurd. He had to build a better picture of this society and its driving forces.

Before returning to Jedrik's room, he'd made another tour of the training courtyard with her. There'd been more new weapons adapted

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from his kit and he'd realized the courtyard was merely Jedrik's testing ground, that there must be many more training areas for her followers.

McKie had not yet revealed to her that Aritch's people might terminate Dosadi's people with violence. She'd been centering on this at dawn. Even while they shared the tiny toilet cubicle off her room she'd pressed for answers.

For a time, McKie had diverted her with questions about Pcharky. What were the powers in that cage? At one point, he'd startled her.

"Pcharky knows something valuable he hopes to trade for his freedom."

"How'd you know?"

"It's obvious. I'll tell you something else: he came here of his own free will . . . for whatever purpose."

"You learn quickly, McKie."

She was laughing at him and he glared at her.

"All right! I don't know that purpose, but it may be that you only think you know it."

For the briefest flicker, something dangerous glared from her eyes, then:

"Your *jumpdoors* have brought us many fools, but Pcharky is one of the biggest fools. I know why he came. There've been many like him. Now . . . there are only a few. Broey, for all of his power, cannot search out his own Pcharky. And Keila Jedrik is the one who frustrates him."

Too late, she realized that McKie had goaded her into this performance. How had he done that? He'd almost found out too much too soon. It was dangerous to underestimate this naive intruder from beyond the God Wall.

Once more, she'd begun probing for things he had not yet revealed. Time had protected him. Aides had come urging an early inspection of the new weapons. They were needed.

Afterward, they'd gone to the command post and then to breakfast in a Warren dining room. All through breakfast, he'd plied her with questions about the fighting. How extensive was it? Could he see some of the prisoners? Were they using the weapons built from the patterns in his kit? Were they winning?

Sometimes she merely ignored his questions. Most of her answers were short, distracted. Yes. No. No. Yes. McKie realized she was answering in monosyllables to fend him off. He was a distraction. Something important had been communicated to her and he'd missed it. Although this angered him, he tried to mask the emotion, striving to penetrate her wall of concern. Oddly, she responded when he changed his line of questioning to the parents of the three children and the conversation there.

"You started to designate a particular place: 'Beyond the . . .' Beyond what?"

"It's something Gar thinks I don't know. He thinks only his death fanatics have that kind of rapport with the Rim."

He stared at her, caught by a sudden thought. By now, he knew much about Gar and Tria. She answered his questions about them

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with candor, often using him openly to clarify her own thoughts. But . . . death fanatics?

"Are these fanatics homosexual?"

She pounced.

"How'd you know?"

"A guess."

"What difference would it make?"

"Are they?"

"Yes."

McKie shuddered.

She was peremptory.

"Explain!"

"When Humans for any reason go terminal where survival of their species is concerned, it's relatively easy to push them the short step further into *wanting* to die."

"You speak from historical evidence?"

"Yes."

"Example."

"With rare exceptions, primitive Humans of the tribal eras reserved their homosexuals as the ultimate shock troops of desperation. They were the troops of last resort, sent into battle as berserkers who expected, who *wanted* to die."

She had to have the term 'berserkers' explained, then showed by her manner that she believed him. She considered this, then:

"What does your ConSentiency do about this susceptibility?"

"We take sophisticated care to guide all natural sexual variants into constructive, survival activities. We protect them from the kinds of pressures which might tip them over into behavior destructive of the species."

Only later had McKie realized she had not answered his question: *beyond what?* She'd rushed him off to a conference room where more than twenty Humans were assembled, including the two parents who'd made the chart about Tria and Gar. McKie realized he didn't even know their names.

It put him at a disadvantage not knowing as many of these people by sight and name as he should. They, of course, had ready memories of everyone important around them and, when they used a name, often did it with such blurred movement into new subjects that he was seldom sure who had been named. He saw the key to it, though. Their memories were anchored in explicit references to relative abilities of those around them, relative dangers. And it wasn't so much that they concealed their emotions as that they *managed* their emotions. Nowhere in their memories could there be any emotive clouding such as thoughts of love or friendship. Such things weakened you. Everything operated on the strict basis of quid pro quo and you'd better have the cash ready . . . whatever that cash might be.

McKie, pressed all around by questions from the people in the conference room, knew he had only one real asset: he was a key they might use to open the God Wall. Very important asset, but unfortunately owned by an idiot.

Now, they wanted his information about death fanatics. They milked him dry then sent him away like a child who has performed for his elders but is sent to his room when important matters are brought up for discussion.

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* * *

Knowledge is the province of the Legum, just as knowledge is a source of crime.

—Gowachin Law

By the fourth morning of the battle for Chu, Tria was in a vile humor. Her forces had established lines holding about one-eighth of the total Warren territory, mostly low buildings except along Broey's corridor to the Rim. She did not like the idea that Jedrik's people held an unobstructed view down onto most of the death fanatics' territory. And most of those leaders who'd thrown in their lot with Tria were beginning to have second thoughts, especially since they'd come to realize that this enclave had insufficient food production facilities to maintain itself. The population density she'd been forced to accept was frightening: almost triple the Warren norm.

Thus far, neither Broey nor Jedrik had moved in force against her. Tria had finally been brought to the inescapable conclusion that she and Gar were precisely where Jedrik wanted them. They'd been cut out of Broey's control as neatly and cleanly as though by a knife. There was no going back. Broey would never accept Human help under present circumstances. That, too, spoke of the exquisite care with which Jedrik had executed her plan.

Tria had moved her command post during the night to a high building which faced the canyon walls to the north. Only the river with a single gate under it separated her from the Rim. She'd slept badly, her mind full of worries. Chief among her worries was the fact that none of the contact parties she'd sent out to the Rim had returned. There'd been no fires on the Rim ledges during the night. No word from *any* of her people out there.

Why?

Once more, she contemplated her position, seeking some advantage, any advantage. One of her lines was anchored on Broey's corridor to the Rim, one line on the river wall with its single gate, and the rest of her perimeter meandered through a series of dangerous salients from the fifth wall to the river.

She could hear sounds of battle along the far side of Broey's corridor. Jedrik's people used weapons which made a great deal of noise. Occasionally, an explosive projectile landed in Tria's enclave. These were rare, but she'd taken casualties and the effect on morale was destructive. That was a major problem with fanatics: they demanded to be used, to be wasted.

Tria stared down at the river, aware of the bodies drifting on its poison currents—both Human and Gowachin bodies, but more Gowachin than Human. Presently, she turned away from the scene, padded into the next room and roused Gar.

"We must contact Jedrik," she said.

He rubbed sleep from his eyes.

"No! We must wait until we make contact with our people on the Rim. Then we can . . ."

"Faaaaa!"

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She'd seldom showed that much disgust with him.

"We're not going to make contact with our people on the Rim. Jedrik and Broey have seen to that. It wouldn't surprise me if they were cooperating to isolate us."

"But we've . . ."

"Shut up, father!" She held up her hands, stared at them. "I was never really good enough to be one of Broey's chief advisors. I always suspected that. I always pressed too hard. Last night, I reviewed as many of my decisions as I could. Jedrik deliberately made me look good. She did it oh so beautifully!"

"But our forces on the Rim . . ."

"May not be ours! They may be Jedrik's."

"Even the Gowachin?"

"Even the Gowachin."

Gar could hear a ringing in his ears. Contact Jedrik? Throw away all of their power?

"I'm good enough to recognize the weakness of a force such as ours," Tria said. "We can be goaded into spending ourselves uselessly. Even Broey didn't see that, but Jedrik obviously did. Look at the salients along her perimeter!"

"What have salients . . ."

"They can be pinched off and obliterated! Even *you* must see that."

"Then pull back and . . ."

"Reduce our territory?" She stared at him aghast. "If I even intimate I'm going to do that, our auxiliaries will desert wholesale. Right now they're . . ."

"Then attack!"

"To gain what?"

Gar nodded. Jedrik would fall back across mined areas, blast the fanatics out of existence. She held enough territory that she could afford such destruction. Clearly, she'd planned on it.

"Then we must pinch off Broey's corridor."

"That's what Jedrik wants us to do. It's the only negotiable counter we have left. That's why we must contact Jedrik."

Gar shook his head in despair.

Tria was not finished, though.

"Jedrik might restore us to a share of power in the Rim city if we bargain for it now. Broey would never do that. Do you understand now the mistake you made with Broey?"

"But Broey was going to . . ."

"You failed to follow my orders, father. You must see now why I always tried to keep you from making independent decisions."

Gar fell into abashed silence. This was his daughter, but he could sense his peril.

Tria spoke.

"I will issue orders presently to all of our commanders. They will be told to hold at all costs. They will be told that you and I will try to contact Jedrik. They will be told why."

"But how can . . . ."

"We will permit ourselves to be captured."

* * *

Does a populace have informed consent when a ruling minority acts in secret to ignite a war, doing this to justify the existence of the minority's military forces? History already has answered that question. Every society in

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the ConSentiency today reflects the historical judgement that failure to provide full information for informed consent on such an issue represents an ultimate crime.

—from the Trial of Trials

Many things conspired to frustrate McKie. Few people other than Jedrik answered his questions. Most responded as though to a cretin. Jedrik treated him as though he were a child of unknown potential. At times, he knew he amused her. Other times, she punished him with an angry glance, by ignoring him or just by going away . . . or worse, sending him away.

It was now late afternoon of the fifth day in the battle for Chu and Broey's forces still held out in the heart of the city with their slim corridor to the Rim. He knew this from reports he'd overheard. He stood in a small room off Jedrik's command post, a room containing four cots where, apparently, she and/or her commanders snatched occasional rest. One tall, narrow window looked out to the south Rim. McKie found it difficult to realize that he'd come across that Rim just six days previously.

Clouds had begun to gather over the Rim's terraced escarpments, a sure sign of a dramatic change in the weather. He knew that much, at least, from his Tandaloor briefings. Dosadi had no such thing as weather control. Awareness of this left him feeling oddly vulnerable. Nature could be so damnably capricious and dangerous when you had no grip on her vagaries.

McKie blinked, held his breath for a moment.

Vagaries of nature.

The vagaries of sentient nature had moved the Gowachin to set up this experiment. Did they really hope to control that vast, seething conglomerate of motives? Or had they some other reason for Dosadi, a reason which he had not yet penetrated? Was this, after all, a test of Caleban mysteries? He thought not.

He knew the way Aritch and aides *said* they'd set up this experiment. Observations here bore out their explanations. None of that data was consistent with an attempt to understand the Calebans. Only that brief encounter with Pcharky, a thing which Jedrik no longer was willing to discuss.

No matter how he tried, McKie couldn't evade the feeling that something essential lay hidden in the way this planet had been set upon its experimental course . . . something the Gowachin hadn't revealed, something they perhaps didn't even understand themselves. What'd they done at the beginning? They had this place, Dosadi, the subjects, the Primary . . . yes, the Primary. The inherent inequality of individuals dominated Gowachin minds. And there was that damnable DemoPol. How had they mandated it? Better yet: how did they maintain that mandate?

Aritch's people had hoped to expose the inner workings of sentient social systems. So they said. But McKie was beginning to look at that explanation with Dosadi eyes, with Dosadi scepticism. What had

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Fannie Mae meant about not being able to leave here in his own body/node? How could he be Jedrik's *key* to the God Wall? Could Pcharky really help Dosadis to escape this planet? McKie knew he needed more information than he could hope to get from Jedrik. Did Broey have this information? McKie wondered if he might in the end have to climb the heights to the Council Hills for his answers. Was that even possible now?

When he'd asked for it, Jedrik had given him almost the run of his building, warning:

"Don't interfere."

Interfere with what?

When he'd asked, she'd just stared at him.

She had, however, taken him around to familiarize everyone with his status. He was never quite sure what that status might be except that it was somewhere between guest and prisoner.

Jedrik had required minimal conversation with her people. Often, she'd used only hand waves to convey the necessary signals of passage. The whole traverse was a lesson for McKie, beginning with the door guards.

"McKie." Pointing at him.

The guards nodded.

Jedrik had other concerns.

"Team Nine?"

"Back at noon."

"Send word."

Everyone subjected McKie to a hard scrutiny which he felt certain would let them identify him with minimal interruption.

There were two elevators—one an express from a heavily guarded street entrance on the side of the building, the other starting above the fourth level at the ceiling of Pcharky's cage. They took this one, went up, pausing at each floor for guards to see him.

When they returned to the cage room, McKie saw that a desk had been installed just inside the street door. The father of those three wild children sat there watching Pcharky, making occasional notations in a notebook. McKie had a name for him now: Ardir.

Jedrik paused at the desk.

"McKie can come and go with the usual precautions."

McKie, addressing himself finally to Jedrik, had said:

"Thanks for taking this time with me."

"No need to be sarcastic, McKie."

He had not intended sarcasm and reminded himself once more that the usual amenities of the ConSentiency suffered a different interpretation here.

Jedrik glanced through Ardir's notes, looked up at Pcharky, back to McKie. Her expression did not change.

"We will meet for dinner."

She left him then.

For his part, McKie had approached Pcharky's cage, noting the tension this brought to the room's guards and observers. The old Gowachin sat in his hammock with an indifferent expression on his face. The bars of the cage emitted an almost indiscernible hissing as they shimmered and glowed.

"What happens if you touch the bars?" McKie asked.

The Gowachin jowls puffed in a faint shrug.

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McKie pointed.

"There's energy in those bars. What is that energy? How is it maintained?"

Pcharky responded in a hoarse croaking.

"How is the universe maintained? When you first see a thing, is that when it was created?"

"Is it a Caleban thing?"

Shrug.

McKie walked around the cage, studying it. There were glistening bulbs wherever the bars crossed each other. The rods upon which the hammock was suspended came from the ceiling. They penetrated the cage top without touching it. The hammock itself appeared to be fabric. It was faintly blue. He returned to his position facing Pcharky.

"Do they feed you?"

No answer.

Ardir spoke from behind him.

"His food is lowered from the ceiling. His excreta are hosed into the reclamation lines."

McKie spoke over his shoulder.

"I see no door into the cage. How'd he get in there?"

"It was built around him according to his own instructions."

"What are the bulbs where the bars cross?"

"They came into existence when he activated the cage."

"How'd he do that?"

"We don't know. Do you?"

McKie shook his head from side to side.

"How does Pcharky explain this?"

"He doesn't."

McKie had turned away to face Ardir, probing, moving the focus of questions from Pcharky to the planetary society itself. Ardir's answers, especially on matters of religion and history, were banal.

Later, as he stood in the room off the command post reviewing the experience, McKie found his thoughts touching on a matter which had not even come into question.

Jedrik and her people had known for a long time that Dosadi was a Gowachin creation. They'd known it long before McKie had appeared on the scene. It was apparent in the way they focused on Pcharky, in the way they reacted to Broey. McKie had added one significant datum: that Dosadi was a Gowachin *experiment*. But Jedrik's people were not using him in the ways he might expect. She said he was the key to the God Wall, but how was he that key?

The answer was not to be found in Ardir. That one had not tried to evade McKie's questions, but the answers betrayed a severely limited scope to Ardir's knowledge and imagination.

McKie felt deeply disturbed by this insight. It was not so much what the man said as what he did not say when the reasons for speaking openly in detail were most demanding. Ardir was no dolt. This was a Human who'd risen high in Jedrik's hierarchy. Many speculations would've crossed his mind. Yet he made no mention of even the more obvious speculations. He raised no questions about the way Dosadi history ran to a single cutoff point in the past without any trace of evolutionary beginnings. He did not appear to be a religious person and even if he were, Dosadi

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would not permit the more blatant religious inhibitions. Yet Ardir refused to explore the most obvious discrepancies in those overt religious attitudes McKie had been told to expect. Ardir played out the right attitudes, but there was no basis for them underneath. It was all surface.

McKie suddenly despaired of ever getting a deep answer from any of these people . . . even from Jedrik.

An increase in the noise level out in the command post caught McKie's attention. He opened the door, stood in the doorway to study the other room.

A new map had been posted on the far wall. There was a position board, transparent and covered with yellow, red and blue dots, over the map. Five women and a man—all wearing earphones—worked the board, moving the colored markers. Jedrik stood with her back to McKie, talking to several commanders who'd just come in from the streets. They still carried their weapons and packs. It was their conversation which had attracted McKie. He scanned the room, noted two communications screens at the left wall, both inactive. They were new since his last view of the room and he wondered at their purpose.

An aide leaned in from the hallway, called out:

"Gate Twenty-One just reported. Everything has quieted there. They want to know if they should keep their reserves on the alert."

"Have them stand down," Jedrik said.

"The two prisoners are being brought here," the aide added.

"I see it," Jedrik said.

She nodded toward the position board.

McKie, following the direction of her gaze, saw two yellow markers being moved with eight blue companions. Without knowing how he understood this, he saw that this must be the prisoners and their escort. There were tensions in the command post which told him this was an important event. Who were those prisoners?

One of Jedrik's commanders spoke.

"I saw the monitor at . . ."

She was not listening to him and he broke off. Two people on the position board exchanged places, trading earphones. The messenger who'd called out the information about the gate and the prisoners had gone. Another messenger came in presently, conferred in a soft voice with people near the door.

In a few moments, eight young Human males entered carrying Gar and Tria securely trussed with what appeared to be shining wire. McKie recognized the pair from Aritch's briefings. The escort carried their prisoners like so much meat, one at each leg and each arm.

"Over here," Jedrik said, indicating two chairs facing her.

McKie found himself suddenly aware in an extremely Dosadi way of many of the nuances here. It filled him with elation.

The escort crossed the room, not bothering to steer clear of all the furniture. The messenger from the hallway delayed his departure, reluctant to leave. He'd recognized the prisoners and knew something important was about to happen.

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Gar and Tria were dumped into the two chairs.

"Release their bindings," Jedrik said.

The escort obeyed.

Jedrik waited, staring across at the position board. The two yellow and eight blue markers had been removed. She continued to stare at the board, though. Something there was more important than these two prisoners. She pointed to a cluster of red markers in an upper corner.

"See to that."

One of her commanders left the room.

McKie took a deep breath. He'd spotted the flicker of her movement toward the commander who'd obeyed. So that was how she did it! McKie moved farther into the room to put Jedrik in profile to him. She made no response to his movement, but he knew she was aware of him. He stepped closer to what he saw as the limit of her tolerance, noted a faint smile as she turned toward the prisoners.

There was an abrupt silence, one of those uncomfortable moments when people realize there are things they must do, but everyone is reluctant to start. The messenger still stood by the door to the hall, obviously wanting to see what would happen here. The escort who'd brought the prisoners remained standing in a group at one side. They were almost huddled, as though seeking protection in their own numbers.

Jedrik glanced across at the messenger.

"You may go."

She nodded to the escort.

"And you."

McKie held his cautious distance, waiting, but Jedrik took no notice of him. He saw that he not only would be allowed to stay, but that he was expected to use his wits, his off-world knowledge. Jedrik had read things in his presence—a normal distrust, caution, patience. And the fears, of course.

Jedrik took her time with the prisoners. She leaned forward, examined first Tria, then Gar. From the way she looked at them it was clear to McKie she weighed many possibilities on how to deal with this pair. She was also building the tensions and this had its effect. Gar broke.

"Broey has a way of describing people such as you," Gar said. "He calls you 'rockets' which is to say you are like a display which shoots up into the sky . . . and falls back."

Jedrik grinned.

McKie understood. Gar was not managing his emotions very well. It was a weakness.

"Many rockets in this universe must die unseen," Jedrik said.

Gar glared at her. He didn't like this response, glanced at Tria, saw from her expression that he had blundered.

Tria spoke now, smiling faintly.

"You've taken a personal interest in us, Jedrik."

To McKie, it was as though he'd suddenly crossed a threshold into the understanding of another language. Tria's was a Dosadi statement, carrying many messages. She'd said that Jedrik saw an opportunity for personal gain here and that Tria knew this. The faint smile had been the beginning of the

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statement. McKie felt a new awe at the special genius of the Dosadi awareness. He moved a step closer. There was something else about Tria . . . something odd.

"What is that one to you?"

Tria spoke to Jedrik, but a flick of the eyes indicated McKie.

"He has a certain utility," Jedrik said.

"Is that the reason you keep him near you?"

"There's no single reason."

"There've been certain rumors . . ."

"One uses what's available," Jedrik said.

"Did you plan to have children by him?"

Jedrik shook with silent mirth. McKie understood that Tria probed for weaknesses, found none.

"The breeding period is so incapacitating for a female," Tria said.

The tone was deliberately goading and McKie waited for a response.

Jedrik nodded.

"Offspring produce many repercussions down through the generations. Never a casual decision for those of us who understand."

Jedrik looked at Gar, forcing McKie to shift his attention.

Gar's face went suddenly bland, which McKie interpreted as shock and anger. The man had himself under control quickly, however. He stared at McKie, directed a question to Jedrik.

"Would his death profit us?"

Jedrik glanced at McKie.

Shocked by the directness of the question, McKie was at least as intrigued by the assumptions in Gar's question. "*Us!*" Gar assumed that he and Jedrik had common cause. Jedrik was weighing that assumption and McKie, filled with elation, understood. He also recognized something else and realized he could now repay all of Jedrik's patient teaching.

Tria!

Something about Tria's way of holding her head, the inflections in her spoken Galach, struck a chord in McKie's memory. Tria was a Human who'd been trained by a PanSpechi—that way of moving the eyes before the head moved, the peculiar emphases in her speech mannerisms. But there were no PanSpechi on Dosadi. Or were there?

None of this showed on McKie's face. He continued to radiate distrust, caution, patience. But he began to ask himself if there might be another loose thread in this Dosadi mystery. He saw Jedrik looking at him and, without thinking about it, gave her a purely Dosadi eye signal to follow him, returned to the adjoining room. It was a measure of how she read him that she came without question.

"Yes?"

He told her what he suspected.

"These PanSpechi, they are the ones who can grow a body to simulate that of another species?"

"Except for the eyes. They have faceted eyes. Any PanSpechi who could act freely and simulate another species would be only the surface manifestation. The freely moving one is only one of five bodies; it's the holder of the ego, the identity. This passes periodically to another of the five. It's a

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PanSpechi crime to prevent that transfer by surgically fixing the ego in only one of the bodies."

Jedrik glanced out the doorway. "You're sure about her?"

"The pattern's there."

"The faceted eyes, can that be disguised?"

"There are ways . . . contact lenses or a rather delicate operation. I've been trained to detect such things, however, and I can tell you that the one who trained her is not Gar."

She looked at him.

"Broey?"

"A graluz would be a great place to conceal a crèche but . . ." He shook his head. ". . . I don't think so. From what you tell me about Broey . . ."

"Gowachin," she agreed. "Then who?"

"Someone who influenced her when she was quite young."

"Do you wish to interrogate the prisoners?"

"Yes, but I don't know their potential value."

She stared at him in open wonder. His had been an exquisitely penetrating Dosadi-style statement. It was as though a McKie she thought she knew had been transformed suddenly right in front of her eyes. He was not yet sufficiently Dosadi to trust completely, but she'd never expected him to come this far this quickly. He did deserve a more detailed assessment of the military situation and the relative abilities of Tria and Gar. She delivered this assessment in the Dosadi way—bare-bones words, swift, clipped to an essential spareness which assumed a necessary broad understanding by the listener.

Absorbing this, McKie sensed where she limited her recital, tailoring it for his abilities. In a way, it was similar to a response by his Daily Schedule back on Central Central. He could see himself in her attitudes, read her assessment of him. She was favoring him with a limited, grudging respect tempered by a certain fondness as by a parent toward a child. And he knew that once they returned to the other room, the fondness would be locked under a mask of perfect concealment. It was there, though. It was there. And he dared not betray her trust by counting on that fondness, else it would be locked away forever.

"I'm ready," he said.

They returned to the command post, McKie with a clearer picture of how to operate here. There was no such thing as mutual, unquestioning trust. You always questioned. You always managed. A sort of grudging respect was the nearest they'd reveal openly. They worked together to survive or when it was overwhelmingly plain that there was personal advantage in mutual action. Even when they united, they remained ultimate individualists. They suspected any gift because no one gave away anything freely. The safest relationships were those in which the niches of the hierarchy were clear and solidly held—minimum threat from above and from below. The whole thing reminded McKie of stories told about behavior in Human bureaucracies of the classical period before deep space travel. And many years before he had encountered a multi-

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species corporation which had behaved similarly until the ministrations of BuSab had shown them the error of their ways. They'd used every dirty trick available: bribing, spying and other forms of covert and overt espionage, fomenting dissent in the opposition, assassination, blackmail and kidnapping. Few in the ConSentiency had not heard of InterRealm Supply, now defunct.

McKie stopped three paces from the prisoners.

Tria spoke first.

"Have you decided what to do with us?"

"There's useful potential in both of you," McKie said, "but we have other questions."

The 'we' did not escape Tria or Gar. They both looked at Jedrik, who stood impassively at McKie's shoulder.

McKie addressed himself to Gar.

"Is Tria really your daughter, your natural child?"

Tria appeared surprised and, with his new understanding, McKie realized she was telling him she didn't care if he saw this reaction, that it suited her for him to see this. Gar, however, had betrayed a flicker of shock. By Dosadi standards, he was dumbfounded. Then Tria was not his natural daughter, but until this moment, Tria had never questioned their relationship.

"Tell us," McKie said.

The Dosadi spareness of the words struck Gar like a blow. He looked at Jedrik. She gave every indication of willingness to wait forever for him to obey, which was to say that she made no response either to McKie's words or Gar's behavior.

Visibly defeated, Gar returned his attention to McKie.

"I went with two females, only the three of us, across the far mountains. We tried to set up our own production of pure food there. Many on the Rim tried that in those days. They seldom came back. Something always happens . . . the plants die for no reason, the water source runs dry, something steals what you grow. The Gods are jealous. That's what we always said."

He looked at Tria, who studied him without expression.

"One of the two women died the first year. The other was sick by the following harvest season but survived through the next spring. It was during that harvest . . . we went to the garden . . . ha! The garden! This child was there. We had no idea of where she'd come from. She appeared to be seven or eight years old but her reactions were those of an infant. That happens often enough on the Rim—the mind retreats from something too terrible to bear. We took her in. Sometimes you can train such a child back to usefulness. When the woman died and the crop failed, I took Tria and we headed back to the Rim. That was a very bad time. When we returned . . . I was sick. Tria helped me then. We've been together ever since."

McKie found himself deeply touched by this recital and hard put to conceal his reaction. He was not positive that he did conceal it. With his new Dosadi awareness, he read an entire saga into that sparse account of events which probably were quite ordinary by Rim standards. He found himself enraged by

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the other data which could be read into Gar's words.

PanSpechi trained!

That was the key. Aritch's people had wanted to maintain the purity of their experiment: only two species permitted. But it would be informative to examine PanSpechi applications. Simple. Take a Human female child. Put her exclusively under PanSpechi influence for seven or eight years. Subject that child to selective memory erasure. Hand her over to convenient surrogate parents on Dosadi.

And there was more: Aritch lied when he said he knew little about the Rim, that the Rim was outside the experiment.

As these thoughts went through his head, McKie returned to the small adjoining room. Jedrik followed. She waited while he assembled his thoughts.

Presently, McKie looked at her, laid out his deductions. When he finished, he glanced at the doorway.

"I need to learn as much as I can about the Rim."

"Those two are a good source."

"But don't you require them for your other plans, the attack on Broey's corridor?"

"Two things can go forward simultaneously. You will return to their enclave with them as my lieutenant. That'll confuse them. They won't know what to make of that. They will answer your questions. And in their confusion they'll reveal much that they might otherwise conceal from you."

McKie absorbed this. Yes . . . Jedrik did not hesitate to put him into peril. It was an ultimate message to everyone. McKie would be totally at the mercy of Gar and Tria. Jedrik was saying: "See! You cannot influence me by any threat to McKie." In a way, this protected him. In an extremely devious Dosadi way, this removed many possible threats to McKie and it told him much about what her true feelings toward him could be. He spoke to this.

"I detest a cold bed."

Her eyes sparkled briefly, the barest touch of moisture, then, arming him:

"No matter what happens to me, McKie—free us!"

* * *

Does a population have informed consent when that population is not taught the inner workings of its monetary system and then is drawn, all unknowing, into economic adventures?

—from the Trial of Trials

"Unless she makes a mistake or we find some unexpected advantage, it's only a matter of time until she overruns us," Broey said.

He sat in his aerie command post at the highest point of the dominant building on the Council Hills. The room was an armored oval with a single window about fifteen meters away directly in front of Broey looking out on sunset through the river's canyon walls. A small table with a communicator stood just to his left. Four of his commanders waited near the table. Maps, position boards and the other appurtenances of command with their at-

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tendants occupied most of the room's remaining space.

Broey's intelligence service had just brought him the report that Jedrik had taken Gar and Tria captive.

One of his commanders, slender for a Gowachin and with other deprivation marks left from birth on the Rim, glanced at his three companions, cleared his throat.

"Is it time to capitulate?"

Broey shook his head in a Human gesture of negation.

It's time I told them, he thought.

He felt emptied. God refused to speak to him. Nothing in his world obeyed the old mandates.

We've been tricked.

The Powers of the God Wall had tricked him, had tricked his world and all of its inhabitants. They'd . . .

"This McKie," the commander said.

Broey swallowed, then:

"I doubt if McKie has even the faintest understanding of how she uses him."

He glanced at the reports on his communicator table, a stack of reports about McKie. Broey's intelligence service had been active.

"If we captured or killed him . . ." the commander ventured.

"Too late for that," Broey said.

"Is there a chance we won't have to capitulate?"

"There's always that chance."

None of the four commanders liked the answer.

Another of them, fat and silky green, spoke up:

"If we have to capitulate, how will we know the . . ."

"We must never capitulate, and we must make certain she knows this," Broey said. "She means to exterminate us."

There! He'd told them.

They were shocked but beginning to understand where his reasoning had led him. He saw the signs of understanding come over their faces.

"The corridor . . ." one of them ventured.

Broey merely stared at him. The fool must know they couldn't get more than a fraction of their forces onto the Rim before Jedrik and Tria closed off that avenue. And even if they could escape to the Rim, what could they do? They hadn't the faintest idea of where Tria's Rim forces had hidden the food stocks or where the damned factories were buried.

"If we could rescue Tria," the slim commander said.

Broey snorted. He'd prayed for Tria to contact him, to open negotiations. There'd been not a word, even after she'd fallen back into that impossible enclave. Therefore, Tria had lost control of her people outside the city. All the other evidence supported this conclusion. There was no contact with the Rim. Jedrik's people had taken over out there. Tria would've sent word to him the minute she recognized the impossibility of her position. Any valuable piece of information, any counter in this game would've leaped into Tria's awareness and she'd have recognized who the highest bidder must be.

Who was the highest bidder? Tria, after all, was Human.

Broey sighed.

And McKie—an idiot savant from beyond the God Wall, a

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weapons expert. Jedrik must've known. But how? Did the Gods talk to her? Broey doubted this. Jedrik gave every evidence of being too clever to be sucked in by trickster Gods.

More clever, more wary, more Dosadi than I.

She deserved the victory.

Broey arose and went to the window. His commanders exchanged worried glances behind him. Could Broey *think* them out of this mess?

A corner of his slim corridor to the Rim was visible to Broey. He could not hear the battle, but explosive orange blossoms told him the fighting continued. He knew the gamble Jedrik took. Those Gowachin beyond the God Wall, the ones who'd created this hellish place, were slow . . . terrifyingly slow. But eventually they would be unable to misunderstand Jedrik's intentions. Would they step in, those mentally retarded Gowachin out there, and try to stop Jedrik? She obviously thought they would. Everything she did told Broey of the care with which Jedrik had prepared for the stupids from Outside. Broey almost wished her success, but he could not bear the price he and his people would have to pay.

Jedrik had the time-edge on him. She had McKie. She had played McKie like a superb instrument. And what would McKie do when he realized the final use Jedrik intended to make of him? Yes . . . McKie was a perfect tool for Jedrik. She'd obviously waited for that perfect instrument, had known when it arrived.

Gods! She was superb!

Broey scratched at the nodes between his ventricles. Well, there were still things a trapped people could do. He returned to his commanders.

"Abandon the corridor. Do it quietly, but swiftly. Fall back to the prepared inner walls."

As his commanders started to turn away, Broey stopped them.

"I also want some carefully selected volunteers. The fix we're in must be explained to them in such a way that there's no misunderstanding. They will be asked to sacrifice themselves in a way no Gowachin has ever before contemplated."

"How?"

It was the slender one.

Broey addressed himself to this one. A Gowachin born on the Rim should be the first to understand.

"We must increase the price Jedrik's paying. Hundreds of their people for every *one* of ours."

"Suicide missions," the slender one said.

Broey nodded, continued:

"One more thing. I want Havvy brought up here and I want orders issued to increase the food allotment to those Humans we've held in special reserve."

Two of his commanders spoke in unison:

"They won't sacri . . ."

"I have something else in mind for them."

Broey nodded to himself. Yes indeed. Some of those Humans could still serve his purposes. It wasn't likely they could serve him as McKie served Jedrik, but there was still a chance . . .yes, a chance. Jedrik might not be certain of what Broey could do with his Humans.

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Havvy, for example. Jedrik had certainly considered and discarded Havvy. In itself, that might be useful. Broey waved for his commanders to leave and execute his orders. They'd seen the new determination in him. They'd pass that along to the ones beneath them. That, too, would serve his purposes. It would delay the moment when his people might suspect that he was making a desperate gamble.

He returned to his communicator, called his search people, urged them to new efforts. They might still achieve what Jedrik obviously had achieved with Pcharky . . . if they could find a Pcharky.

* * *

The music of a civilization has far reaching consequences on consciousness and, thus, influences the basic nature of a society. Music and its rhythms divert and compel the awareness, describing the limits within which a consciousness, thus fascinated, may operate. Control the music then and you own a powerful tool with which to shape the society.

—The Dosadi Analysis,
BuSab Documents

McKie told himself that he might've known an assignment from Jedrik could not be simple. There had to be Dosadi complications.

"There can be no question in their minds that you're really my lieutenant."

"Then I must be your lieutenant."

This pleased her and she gave him the bare outline of her plan, warning him that the upcoming encounter could not be an act. He must respond as one who was fully aware of this planet's demands.

Night fell over Chu while she prepared him and, when they returned to the command post where Gar and Tria waited, the occasion presented itself as Jedrik had told him it would. It was a sortie by Broey's people against Gate Eighteen. Jedrik snapped the orders at him, sent him running.

"Find the purpose of that!"

McKie paused only to pick up four waiting guards at the command post door, noting the unconcealed surprise in Gar and Tria. They'd formed a particular opinion of McKie's position and now had to seek a new assessment. Tria would be most upset by this, confused by self doubts. McKie knew Jedrik would immediately amplify those doubts, telling Gar and Tria that McKie would go with them when he returned from Gate Eighteen.

"You must consider his orders as my orders."

Gate Eighteen turned out to be more than a minor problem. Broey had taken the gate itself and two buildings. One of the attackers, diving from an upper window into one of Jedrik's best units, had blown himself up with a nasty lot of casualties.

"More than a hundred dead," a breathless courier told him.

McKie didn't like the implications of a suicide attack, but couldn't pause to assess it. They had to eliminate this threat. He gave orders for two feints while a third force blasted down one of the cap-

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tured buildings, smothering the gate in rubble. That left the other captive building isolated. The swiftness of this success dazzled Jedrik's forces and the commanders snapped to obedience when McKie issued orders for them to take captives and bring those captives to him for interrogation.

At McKie's command, one of his original four guards brought a map of the area, tacked it to a wall. Less than an hour had passed since he'd left Jedrik, but McKie felt that he'd entered another world, one even more primitive than that surrounding the incredible woman who'd set all of this in motion. It was the difference between second- and third-hand reports of action and the physical feeling of that action all around him. Explosions and the hissing of flamers down on the streets jarred his awareness.

Staring at the map, McKie said: "This has all the marks of a trap. Get all but a holding force out of the area. Tell Jedrik."

People scurried to obey.

One of the guards and two sub-commanders remained. The guard spoke.

"What about this place?"

McKie glanced around him. It was a square room with brown walls. Two windows looked out on the street away from the battle for the isolated building near the gate. He'd hardly looked at the room when they'd brought him here to set up his command post. Four streets with isolated holdouts cushioned him from the main battle. They could shoot a cable bridge to another building if things became hot here. And it'd help morale if he remained in the danger area.

He spoke to one of the sub-commanders:

"Go down to the entry. Call all the elevators down there and disable all but one. Stand by that one with a holding force and put guards in the stairway. Stand by yourself to bring up captives. Comment?"

"I'll send up two cable teams and make sure the adjoining buildings are secure."

Of course! McKie nodded.

Gods! How these people reacted in emergencies. They were as direct and cutting as knives.

"Do it," McKie said.

He had less than a ten minute wait before two of Jedrik's special security troops brought up the first captive, a young Gowachin whose eyelids bore curious scars—scroll-like and pale against the green skin.

The two security people stopped just inside the doorway. They held the Gowachin firmly, although he did not appear to be struggling. The sub-commander who'd brought them up closed the door as he left.

One of the captors, an older man with narrow features, nodded as he caught McKie's attention.

"What'll we do with him?"

"Tie him in a chair," McKie instructed.

He studied the Gowachin as they complied.

"Where was he captured?"

"He was trying to escape from that building through a perimeter sewage line."

"Alone?"

"I don't know. He's the first of a group of prisoners. The others are waiting outside."

They had finished binding the

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young Gowachin, now took up position directly behind him.

McKie studied the captive. He wore black coveralls with characteristic deep vee to clear the ventricles. The garment had been cut and torn in several places. He'd obviously been searched with swift and brutal thoroughness. McKie put down a twinge of pity. The scar lines on the prisoner's eyelids precluded anything but the most direct Dosadi necessities.

"They did a poor job removing your Phylum tatoos," McKie said. He'd already recognized the scar lines: Deep Swimmers. It was a relatively unimportant Phylum, small in numbers and sensitive about their status.

The young Gowachin blinked. McKie's opening remark had been so conversational, even toned, that the shock of his words came after. Shock was obvious now in the set of the captive's mouth.

"What is your name, please?" McKie asked, still in that even, conversational way.

"Grinik."

It was forced out of him.

McKie asked one of the guards for a notebook and stylus, wrote the Gowachin's name in it, adding the Phylum indentification.

"Grinik of the Deep Swimmers," he said. "How long have you been on Dosadi?"

The Gowachin took a deep, ventricular breath, remained silent. The security men appeared puzzled. This interrogation wasn't going as they'd expected.

McKie himself did not know what to expect. He still felt himself recovering from surprise at recognition of the bad-erased Phylum tatoos.

"This is a very small planet," McKie said. "The Universe from which we both come is very big and can be very cruel. I'm sure you didn't come here expecting to die."

If this Grinik didn't know the deadly plans of his superiors, that would emerge shortly. McKie's words could be construed as a personal threat beyond any larger threat to Dosadi as a whole. It remained to see how Grinik reacted.

Still, the young Gowachin hesitated.

When in doubt, remain silent.

"You appear to've been adequately trained for this project," McKie said. "But I doubt if you were told everything you should know. I even doubt if you were told things essential to you in your present position."

"Who are you?" Grinik demanded. "How dare you speak here of matters which . . ." He broke off, glanced at the two guards standing at his shoulders.

"They know all about us," McKie lied.

He could smell the sweet perfume of Gowachin fear now, a floral scent which he'd noted only on a few previous occasions. The two guards also sensed this and showed faint smiles to betray that they knew its import.

"Your masters sent you here to die," McKie said. "They may very well pay heavily for this. You ask who I am? I am Jorj X. McKie, Legum of the Gowachin bar, Saboteur Extraordinary, senior lieutenant of Jedrik who will shortly rule all of Dosadi. I make formal

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imposition upon you. Answer my questions for the Law is at stake."

On the Gowachin worlds that was a most powerful motivator. Grinik was shaken by it.

"What do you wish to know?"

He barely managed the words.

"Your mission on Dosadi. The precise instructions you were given and who gave them to you."

"There are twenty of us. We were sent by Mrreg."

That name! The implications in Gowachin lore stunned McKie. He waited, then:

"Continue."

"Two more of our twenty are out there."

Grinik motioned to the doorway, clearly pleading for his captive associates.

"Your instructions?"

"To get our people out of this terrible place."

"How long?"

"Just . . . sixty hours remain."

McKie exhaled slowly. So Aritch and company had given up on him. They were going to eliminate Dosadi.

"Where are the other members of your party?"

"I don't know."

"You were, of course, a reserve team trained and held in readiness for this mission. Do you realize how poorly you were trained?"

Grinik remained silent.

McKie put down a feeling of despair, glanced at the two guards. He understood that they'd brought him this particular captive because this was one of three who were not Dosadi. Jedrik had instructed them, of course. Many things became clearer to him in this new awareness. Jedrik had put sufficient pressure on the Gowachin beyond the God Wall. She still had not imagined the extremes to which those Gowachin might go in stopping her. It was time Jedrik learned what sort of fuse she'd lighted. And Broey must be told. Especially Broey . . . before he sent many more suicide missions.

The outer door opened and the sub-commander leaned in to speak.

"You were right about the trap. We mined the area before pulling back. Caught them nicely. The gate's secure now and we've cleared out that last building."

McKie pursed his lips, then:

"*Take the prisoners to Jedrik.* Tell her we're coming in."

A flicker of surprise touched the sub-commander's eyes.

"She knows."

Still the man hesitated.

"Yes?"

"There's one Human prisoner out here you should question before leaving."

McKie waited. Jedrik knew he was coming in, knew what had gone on here, knew about the Human prisoner out there. She wanted him to question this person. Yes . . . of course. She left nothing to chance . . . by her standards. Well, her standards were about to change but she might even know that.

"Name?"

"Havvy. Broey holds him but he once served Jedrik. She says to tell you Havvy is a reject, that he was contaminated."

"Bring him in."

Havvy surprised him. The surface was that of a bland-faced nonentity,

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braggadocio clearly evident under a mask of secret knowledge. He wore a green uniform with a driver's brassard. The uniform was wrinkled but there were no visible rips or cuts. He'd been treated with more care than the Gowachin who was being led out of the room. Havvy replaced the Gowachin in the chair. McKie waved away the bindings.

Unfocused questions created turmoil in McKie's mind. He found it difficult to delay. Sixty hours! But he felt that he could almost touch the solution to the Dosadi mystery, that in only a few minutes he would know names and real motives for the ones who'd created this monster. Havvy? He'd served Jedrik. In what way? Why rejected? Contaminated?

Unfocused questions, yes.

Havvy sat in watchful tension, casting an occasional glance around the room, at the windows. There were no more explosions out there.

As McKie studied him more carefully, certain observations emerged. Havvy was small but solid, one of those Humans of lesser stature who concealed heavy musculature which could surprise you if you suddenly bumped into them. It was difficult to guess his age, but he was not Dosadi. A member of Grinik's team? Doubtful. Clearly not Dosadi, though. He didn't examine those around him with an automatic status assessment. His reactions were slow. Too much that should remain under shutters flowed from within him directly to the surface. Yes, that was the ultimate revelation. It bothered McKie that so much went on unseen beneath the surface here, so much for which Aritch and company had not prepared him. It would take a lifetime to learn all the nuances of this place and he had less than sixty hours remaining to him.

All of this flowed through McKie's mind in an eyeblink. He reached his decision, motioned the guards and others to leave.

One of the security people started to protest but McKie silenced him with a glance, pulled up a chair and sat down facing the captive.

The door closed behind the last of the guards.

"You were sent here deliberately to seek me out," McKie said.

It was not the opening Havvy had expected. He stared into McKie's eyes. A door slammed outside. There was the sound of several doors opening and shutting, the shuffling of feet. An amplified voice called out:

"Move these prisoners out!"

Havvy chewed at his upper lip. He didn't protest. A deep sigh shook him, then:

"You're Jorj X. McKie of BuSab?"

McKie blew out through pursed lips. Did Havvy doubt the evidence of his own senses? Surprising. McKie shook his head, continued to study the captive.

"You can't be McKie!" Havvy said.

"Ahhhhhh . . ." It was pressed out of McKie.

Something about Havvy: the body moved, the voice spoke, but the eyes did not agree.

McKie thought about what the Caleban, Fannie Mae, had said. *A light touch.* He was overtaken by an abrupt certainty: someone other than

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Havvy looked out through the man's eyes. Yessss. Aritch's people controlled the Caleban who maintained the barrier around Dosadi. That Caleban could contact selected people here. She'd have a constant updating on everything such people learned. There must be many such spies on Dosadi, all trained not to betray the Caleban contact—no twitching, no lapses into trance. No telling how many agents Aritch possessed here.

Would all the other people on Dosadi remain unaware of such a thing, though? That was a matter to question.

"But you must be McKie," Havvy said. "Jedrik's still working out of . . ." He broke off.

"You must've provided her with some amusement by your bumbling," McKie said. "I assure you, however, that BuSab is *not* amused."

A gloating look came over Havvy's face.

"No, she hasn't made the transfer yet."

"Transfer?"

"Haven't you figured out yet how Pcharky's supposed to buy his freedom?"

McKie felt off balance at this odd turn.

"Explain."

"He's supposed to transfer your identity into Jedrik's body and her identity into your body. I think she was going to try that with me once, but . . ."

Havvy shrugged.

It was like an explosion in McKie's newly sensitized awareness. Rejected! Contaminated! *Body exchange!* McKie was accusatory!

"Broey sent you!"

"Of course." Offensive.

McKie contained his anger. The Dosadi complexities no longer baffled him as once they had. It was like peeling back layer upon layer of concealment. With each new layer you expected to find *the* answer. But that was a trap the whole universe set for the unwary. It was the ultimate mystery and he hated mystery. There were those who said this was a necessary ingredient for BuSab agents. You eliminated that which you hated. But everything he'd uncovered about this planet showed him how little he'd known previously about any mystery. Now, he understood something new about Jedrik. There was little doubt that Broey's Human messenger told the truth. Pcharky had penetrated the intricacies of PanSpechi ego transfer. He'd done it without a PanSpechi as his subject, unless. Yes . . . that expanded the implications in Tria's history.

Their PanSpechi experiment had assumed even more grotesque proportions.

"I will speak directly to your Caleban monitor," McKie said.

"My what?"

It was such obvious dissimulation that McKie only snorted. He leaned forward.

"I will speak directly to Aritch. See that he gets this message without any mistakes."

Havvy's eyes became glassy. He shuddered.

McKie felt the inner tendrils of an attempted Caleban contact in his own awareness, thrust them aside.

"No! I will speak openly through your agent. Pay close attention,

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Aritch. Those who created this Dosadi horror cannot run far enough, fast enough or long enough to escape. If you wish to make every Gowachin in the universe a target for violence, you are proceeding correctly. Others, including BuSab, can employ mass violence if you force it upon them. Not a pleasant thought. But unless you adhere to your own Law, to the honored relationship between Legum and Client, your shame will be exposed. Innocent Gowachin as well as you others whose legal status has yet to be determined—all will pay the bloody price."

Havvy's brows drew down in puzzlement.

"Shame?"

"They plan to blast Dosadi out of existence."

Havvy pressed back into the chair, glared at McKie.

"You're lying."

"Even you, Havvy, are capable of recognizing a truth. I'm going to release you, pass you back through the lines to Broey. Tell him what you learned from me."

"It's a lie! They're not going to . . ."

"Ask Aritch for yourself."

Havvy didn't ask "Aritch who?" He lifted himself from the chair.

"I will."

"Tell Broey we've less than sixty hours. None of us who can resist mind erasure will be permitted to escape."

"Us?"

McKie nodded, thinking: *yes, I am Dosadi now.* He said:

"Get out of here."

It afforded him a measure of amusement that the door was

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opened by the sub-commander just as Havvy reached it.

"See to him yourself," McKie said, indicating Havvy. "I'll be ready to go in a moment."

Without any concern about whether the sub-commander understood the nature of the assignment, McKie closed his eyes in thought. There remained the matter of Mrreg who'd sent twenty Gowachin from Tandaloor to get *his people* off the planet. Mrreg. That was the name of the mythical monster who'd tested the first primitive Gowachin people almost to extinction, setting the pattern of their deepest instincts.

Mrreg?

Was it code or did some Gowachin actually use that name? Or was it a role that some Gowachin filled?

* * *

When the means of great violence are widespread, nothing is more dangerous to the powerful than that they create outrage and injustice for outrage and injustice will certainly ignite retaliation in kind.

—BuSab Manual

Less than an hour after closing down at Gate Eighteen, McKie and his escort arrived back at Jedrik's headquarters building. He led them to the heavily guarded side entrance with its express elevator, not wanting to pass Pcharky at this moment. Pcharky was an unnecessary distraction. He left the escort in the hallway with instructions to get food and rest, signalled for the elevator.

The elevator door was opened by a small Human female of about fifteen years who nodded him into the dim interior.

McKie, his natural distrust of even the young on this planet well masked, nevertheless kept her under observation as he accepted the invitation. She was a gamin child with dirty face and hands, a torn grey single garment cut off at the knees. Her very existence as a Dosadi survivor said she'd undoubtedly sold her body many times for scraps of food. He realized how much Dosadi had influenced him when he found that he couldn't raise even the slightest feeling of censure at this knowledge. You did what the conditions around you demanded when those conditions were overwhelming. It was an ultimate question: this or death? And certainly some of them chose death.

"Jedrik," he said.

She worked her controls and he found himself presently in an unfamiliar hallway. Two familiar guards stood at a doorway down the hall, however. They betrayed not the slightest interest in him as he opened the door between them swiftly and strode through.

It was a tiny anteroom, empty, but another door directly in front of him. He opened this with more confidence than he felt, entered a larger space full of projection-room gloom with shadowed figures seated facing a holographic focus on his left. McKie identified Jedrik by her profile, slipped into a seat beside her.

She kept her attention on the h-focus where a projection of Broey stood looking out at something over their shoulders. McKie recognized

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the subtle slippage of computer simulation. That was not a flesh-and-blood Broey in the focus.

Someone on the far side of the room stood up and crossed to sit beside another figure in the gloom. McKie recognized Gar as the man moved through one of the projection beams.

McKie whispered to Jedrik: "Why simulation?"

"He's beginning to do things I didn't anticipate."

The suicide missions. McKie looked at the simulation, wondered why there was no sync-sound. Ahhh, yes. They were lip reading and it was silent to reduce distractions, to amplify concentration. Yes, Jedrik was reworking the simulation model of Broey which she carried in her head. She would also carry another model, even more accurate than the one of Broey, which would give her a certain lead time on the reactions of one Jorj X. McKie.

"Would you really have done it?" he asked.

"Why do you distract me with such nonsense?"

He considered. Yes, it was a good question. He already knew the answer. She would have done it: traded bodies with him and escaped outside the God Wall as McKie. She might still do it unless he could anticipate the mechanics of the transfer.

By now she knew about the sixty-hour limit and would suspect its significance. Less than sixty hours. And the Dosadi could make extremely complex projections from limited data. Witness this Broey simulation.

The figure in the focus was talking to a fat Human female who held a tube which McKie recognized as a communicator for field use.

Jedrik spoke across the room to Gar.

"She still with him?"

"Addicted."

A two-sentence exchange and it condensed an entire conversation about possible uses of that woman. McKie did not ask addicted to what. There were too many such substances on Dosadi, each with peculiar characteristics, often involving odd monopolies with which everyone seemed familiar.

This was a telltale gap in Aritch's briefings: the monopolies and their uses.

As McKie absorbed the action in the focus, the reasons behind this session became more apparent. Broey was refusing to believe the report from Havvy.

And there was Havvy in the focus.

Jedrik favored McKie with one flickering glance as Havvy-simulation appeared. Certainly. She factored McKie into her computations.

McKie compressed his lips. She knew Havvy would contaminate me. They couldn't say "I love you" on this damned planet. Oh, no. They had to create a special Dosadi production number.

"Most of the data for this originated before the breakup," McKie said. "It's useless. Rather than ask the computer to play pretty pictures for us, why don't we examine our own memories? Surely, somewhere in the combined experiences with Broey . . ."

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A chuckle somewhere to the left stopped him.

Too late, McKie saw that every seat in the room had an arm keyed to the simulations. They were doing precisely what he'd suggested, but in a more sophisticated way. The figures at the focus were being adjusted to the combined memories. There was such a keyed arm at McKie's right hand. He suddenly realized how tactless and lecturing he still must appear to these people. They didn't waste energy on unnecessary words. Anyone who did must be subnormal, poorly trained or . . . or not from Dosadi.

"Does he always state the obvious?" Gar asked.

McKie wondered if he'd blown his lieutenancy, lost the opportunity to explore the mystery of the Rim, but . . . no, there wasn't time for that now. He'd have to penetrate the Rim another way.

"He's new," Jedrik said. "New is not necessarily naive, as you should know."

"He has you doing it now," Gar said.

"Guess again."

McKie put a hand to the simulation controls under his right hand, tested the keys. He had it in a moment. They were similar to such devices in the ConSentiency, an adaptation from the DemoPol inputs, no doubt. Slowly, he changed the Broey at the focus, heavier, the sagging jowls and node wattles of a breeding male Gowachin. McKie froze the image.

"Tentative?" Gar asked.

Jedrik answered for him.

"It's knowledge he brought here with him." She did something to her controls, stopped the projection and raised the room lights.

McKie noted that Tria was nowhere in the room.

"The Gowachin have sequestered their females somewhere," McKie said. "That somewhere should not be difficult to locate. Send word to Tria that she must not mount her attack on Broey's corridor just yet."

"Why delay?" Gar demanded.

"Broey will have all but evacuated the corridor by now," McKie said.

Gar was angry and showing it.

"Not a single one of them has gone through that Rim gate."

"Not to the Rim," Jedrik said.

It was clear to her now. McKie had supplied the leverage she needed. It was time now to employ him as she'd always intended. She glanced at McKie.

"We have unfinished business. Are you ready?"

He held his silence. How could he answer such a Dosadi-weighted question? There were so many things left unspoken on this planet, only the native-born could understand them all. McKie felt once more that he was a dull outsider, a child of dubious potential among normal adults.

Jedrik arose, looked across at Gar.

"Send word to Tria to hold herself in readiness for another assignment. Tell Broey. Call him on an open line. We now have an excellent use for your fanatics. If only a few of your people fight through to that graluz complex it'll be enough and Broey will know it."

McKie noted that she spoke to Gar with a familiar teaching em-

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phasis. It was the curiously weighted manner she'd once used with McKie but no longer found necessary. His recognition of this amused her.

"Come along, McKie. We haven't much time."

* * *

The attack by those who want to die—this is the attack against which you cannot prepare a perfect defense.
—Human aphorism

For almost an hour after the morning meal, Aritch observed Ceylang as she worked with the McKie simulator. She was pushing herself hard, believing Wreave honor at stake, and had almost reached the pitch Aritch desired.

Ceylang had set up her own simulator situation: McKie interviewing five of Broey's Gowachin. She had the Gowachin come to McKie in surrender, hands extended, the webbed fingers exposed to show that the talons were withdrawn.

Simulator-McKie merely probed for military advantages.

"Why does Broey attack in this fashion?"

Or he'd turn to some place outside the h-focus of the simulator.

"Send reinforcements into that area."

Nothing about the Rim.

Earlier, Ceylang had tried the issue with a prisoner simulation where the five Gowachin tried to confuse McKie by presenting a scenario in which Broey massed his forces at the corridor. The makings of a breakout to the Rim appeared obvious.

Simulator-McKie asked the prisoners why they lied.

Ceylang cleared the simulator. She saw Aritch at the observation window, opened a channel to him.

"Something has to be wrong in the simulation. McKie cannot be led into questioning the purposes of the Rim."

"I assure you that simulation is remarkable in its accuracy. Remarkable."

"Then why . . ."

"Perhaps he already knows the answer. Why don't you try him with Jedrik? Here . . ." Aritch operated the controls at the observer station. "This might help. This is a record of McKie in recent action on Dosadi."

The simulator presented a view down a covered passage through a building. Artificial light. Darkness at the far end of the passage. McKie, two blocky guards in tow, approached the viewers.

Ceylang recognized the scene. She'd watched this action at Gate Eighteen from several angles, had seen this passage empty before the battle, acquainting herself with the available views. As she'd watched it then, the passage had filled with Human defenders. There was a minor gate behind the viewer and she knew the viewer itself to be only a bright spot, a fleck of glittering impurity in an otherwise drab brick over the gate's archway.

Now, the long passage seemed strange to Ceylang without its throng of defenders. There were only a few workmen along its

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length as McKie passed. The workmen repaired service pipes in the ceiling. A cleanup crew washed down patches of blood at the far end of the passage, the high water mark of the Gowachin attack. An officer leaned against a wall near the viewer, a bored expression on his face which did not mislead Ceylang. He was there to watch McKie. Three soldiers squatted nearby rolling hexi-bones for coins which lay in piles before each man. Every now and then, one of the gamblers would pass a coin to the watching officer. A repair supervisor stood with his back to the viewer, notebook in hand, writing a list of supplies to complete the job. McKie and his guards were forced to step around these people. As they passed, the officer turned, looked directly into the viewer, smiled.

"That officer," Ceylang said. "One of your people?"

"No."

The viewpoint shifted, looking down on the gate itself, McKie in profile. The gatekeeper was a teenager with a scar down his right cheek and a broken nose. McKie showed no signs of recognition, but the youth knew McKie.

"You go through on request."

"When did she call?"

"Ten."

"Let us through."

The gate was opened. McKie and his guards went through, passed beyond the viewer's focus.

The youthful gatekeeper stood up, smashed the viewer. The h-focus went blank.

Aritch looked down from his observation booth for a moment before speaking.

"Who called?"

"Jedrik?" Ceylang spoke without thinking.

"What does that conversation tell you? Quickly!"

"That Jedrik anticipated his movements, was observing him all the time."

"What else?"

"That McKie . . . knows this, knows she can anticipate him."

"She carries a better simulation of him in her head than we have . . . there."

Aritch pointed at the h-focus area.

"But they left so much unspoken!" Ceylang said.

Aritch remained silent.

Ceylang sat back and closed her eyes. It was like mind reading. It confused her.

Aritch interrupted her musings.

"What about that officer and the gatekeeper?"

She shook her head.

"You're wise to use living observers there. They all seem to know when they're being watched. And how it's done."

"Even McKie."

"He didn't look at the viewers."

"Because he assumed from the first that we'd have him under almost constant observation. He's not concerned about the mechanical intrusions. He has built a simulation McKie of his own who acts on the surface of the real McKie."

"That's your assumption?"

"We arrived at this from observation of Jedrik in her dealings with McKie. She peels away the simulation layers one at a time, coming closer and closer to the actuality at the core."

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Another observation bothered Ceylang.

"Why'd the gatekeeper shut down that viewer just then?"

"Obviously because Jedrik told him to do that."

Ceylang shuddered.

"Sometimes I think those Dosadi play us like a fine instrument."

"But of course! That's why we sent them our McKie."

* * *

The more control the more that requires control. This is the road to chaos.

—PanSpechi aphorism

It was a half hour before Jedrik and McKie found themselves in the hallway leading to her quarters. McKie, aware of the effort she was expending to conceal a deep weariness, watched her carefully. She concentrated on presenting a show of vitality, her attention glued on the prospect ahead. There was no way of telling what went on in her mind. McKie did not attempt to break the silence. He had his own worries.

Which was the real Jedrik? How was she going to employ Pcharky? Could he resist her?

He knew he was close to a solution of the Dosadi mystery, but the prospect of the twin gambles he was about to take filled him with doubts.

On coming from the projection room, they'd found themselves in a strange delaying situation, as though it were something planned for their frustration. Everything had been prepared for their movement—guards warned, elevator waiting, doors opened. But every time they thought the way clear they met interference. Except for the obvious importance of the matters which delayed them, it was easy to imagine a conspiracy.

A party of Gowachin at Gate Seventy wanted to surrender but they demanded a parley first. One of Jedrik's aides didn't like the situation. Something about the assessment of the offer bothered her and she wanted to discuss it with Jedrik. She stopped them halfway down the first hall outside the projection room.

The aide was an older woman who reminded McKie vaguely of a Wreave lab worker at BuSab, one who'd always been suspicious of computers, even antagonistic toward them. This Wreave had read every bit of history he could find about the evolution of such instruments and liked to remind his listeners of the misuses of the DemoPol. Human history had provided him with abundant ammunition, what with its periodic revolts against "enslavement by machines." Once, he'd cornered McKie.

"Look here! See this sign: 'Gigo.' That's a very old sign that was hung above one of your ancient computers. It's an acronym: 'Garbage In, Garbage Out.' You see! They knew."

Yes. Jedrik's female aide reminded him of that Wreave.

McKie listened to her worries. She roamed all around a central disquiet, never settling on a particular thing. Aware of Aritch's dead-

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line and Jedrik's fatigue, McKie felt the pressures bearing down upon him.

The aide's data was accurate. Others had checked it. Finally, he could hold his impatience no longer.

"Who fed this data into your computer?"

The aide was startled at the interruption, but Jedrik turned to him, waiting.

"I think it was Holjance," the aide said. "Why?"

"Get him in here."

"Her."

"Her, then! Make sure she's actually the one who fed in that data."

Holjance was a pinch-faced woman with deep wrinkles around very bright eyes. Her hair was dark and wiry, skin almost the color of McKie's.

Yes, she was the one who'd fed the data into the computer because it had arrived on her shift and she'd thought it too important to delegate.

"What is it you want?" she demanded.

He did not see any rudeness in this. It was Dosadi directness. Important things were happening all around.

Don't waste time.

"You saw this assessment of the surrender offer?" he asked.

"Yes."

"Are you satisfied with it?"

"The data went in correctly."

"That's my question."

"Of course I'm satisfied!"

She stood ready to defend herself against any charge that she'd slighted her job.

"Tell me, Holjance," he said, "if you wanted the Gowachin computers to produce inaccurate assessments, what would you do?"

She thought about this a moment, blinked, glanced almost furtively at Jedrik who appeared lost in thought. "Well, sir, we have a regular filtering procedure for preventing . . ."

"That's it," Jedrik said. "If I were a Gowachin, I would not be doing that right now."

Jedrik turned, barked orders to the guards behind her.

"That's another trap! Take care of it."

As they emerged from the elevator on Jedrik's floor there was another delay, one of the escort who'd been with McKie at Gate Eighteen. His name was Todu Pellas and McKie addressed him by name, noting the faint betrayal of pleasure this elicited. Pellas, too, had doubts about carrying out a particular order.

"We're supposed to back up Tria's move by attacking across the upper parkway, but there are some trees and other growth knocked down up here that haven't been moved for two days."

"Who knocked down those trees?" McKie asked.

"We did."

McKie understood. "You feinted." The Gowachin were supposed to believe this would provide cover for an attack but there'd been no attack for two days.

"They must be under pretty heavy strain," Jedrik said.

McKie nodded. That, too, made sense. The alternative Gowachin assumption was that the Humans were trying to fake them into an attack at that point. But the cover had not

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been removed by either side for two days.

Jedrik took a deep breath.

"We have superior firepower and when Tria . . .well, you should be able to cut right through there to . . ."

McKie interrupted.

"Call off that attack."

"But . . ."

"Call it off!"

She saw the direction of his reasoning. Broey had learned much from the force which Gar and Tria had trained. And Jedrik herself had provided the final emphasis in the lesson. She saw there was no need to change her orders to Pallas.

Pallas had taken it upon himself to obey McKie, not waiting for Jedrik's response, although she was his commander. He already had a communicator off his belt and was speaking rapidly into it.

"Yes! Dig in for a holding action."

He spoke in an aside to Jedrik.

"I can handle it from here."

In a few steps, Jedrik and McKie found themselves in her room. Jedrik leaned with her back against the door, no longer trying to conceal her fatigue.

"McKie, you're becoming very Dosadi."

He crossed to the concealing panels, pulled out the bed.

"You need rest."

"No time."

Yes, she knew all about the sixty-hour deadline . . . less than fifty-five hours now. Dosadi's destruction was a reaction she hadn't expected from 'X' and she blamed herself.

He turned, studied her, saw that she'd passed some previously defined limit of personal endurance. She possessed no amplifiers of muscles or senses, none of the sophisticated aids McKie could call upon in emergencies. She had nothing but her own magnificent mind and body. And she'd almost run them out. Still she pressed on. This told him a great deal about her motivation.

McKie found himself deeply touched by the fact that she'd not once berated him for hiding that ultimate threat which Aritch held over Dosadi. She'd accepted it that someone in Aritch's position could erase an entire planet, that McKie had been properly maneuvered into concealing this.

The alternative she offered filled McKie with misgivings.

Exchange bodies?

He understood now that this was Pcharky's function, the price the old Gowachin paid for survival. Jedrik had explained.

"He will perform this service one more time. In exchange, we release him from Dosadi."

"If he's one of the original . . . I mean, why doesn't he just leave?"

"We haven't provided him with a body he can use."

McKie had suppressed a feeling of horror. But the history of Dosadi which Jedrik unfolded made it clear that a deliberate loophole had been left in the Caleban contract which imprisoned this planet. Fannie Mae had even said it. He could leave in another body. That was the basic purpose behind this experiment.

New bodies for old!

Aritch had expected this to be the ultimate enticement, luring McKie

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into the Gowachin plot, enlisting McKie's supreme abilities and his powerful position in BuSab.

A new body for his old one.

All he'd have to do would be to cooperate in the destruction of a planet, conceal the real purpose of this project and help set up another body-trade planet better concealed.

But Aritch had not anticipated what might be created by Jedrik plus McKie. They now shared a particular hate and motivation.

Jedrik still stood at the door waiting for him to decide.

"Tell me what to do," he said.

"You're sure that you're willing to . . ."

"Jedrik!"

He thought he saw the beginning of tears. It wasn't that she hid them, but that they reached a suppression level barely visible and she defied them. She found her voice, pointed.

"That panel beside the bed. Pressure latch."

The panel swung wide to reveal two shimmering rods about two centimeters in diameter. The rods danced with the energies of Pcharky's cage. They emerged from the floor, bent at right angles about waist height and, as the panel opened, they rotated to extend into the room—two glowing handles about a meter apart.

McKie stared at them. He felt a tightness in his breast. What if he'd misread Jedrik? Could he be sure of any Dosadi? This room felt as familiar to him now as his quarters on CC. It was here that Jedrik had taught him some of the most essential Dosadi lessons. Yet . . .he knew the old pattern of what she proposed. The discarded body with its donor ego had always been killed immediately. Why?

"You'll have your answer to that question when we're done."

A Dosadi response, ambiguous, heavy with alternatives.

He glanced around the room, found it hard to believe that he'd known this place only these few days. His attention returned to the shimmering rods. Another trap?

He knew he was wasting precious time, that he'd have to go through with this. But what would it be like to find himself in Jedrik's flesh, wearing her body as he now wore his own? PanSpechi transferred an ego from body to body. But something unspeakable which they would not reveal happened to the donor.

McKie took a trembling breath.

It had to be done. He and Jedrik shared a common purpose. She'd had many opportunities to use Pcharky simply to escape. The fact that she'd waited for a McKie forced him to believe her. Jedrik's followers trusted her . . . and they were Dosadi. And if he and Jedrik escaped, Aritch would find himself facing a far different McKie from the one who'd come so innocently across the Rim. They might yet stay Aritch's hand.

The enticement had been real, though. No doubting that. Shed an old body, get a new one. And the Rim had been the major source of *raw material* . . . strong, resilient bodies. Survivors.

"What do I do?" he asked.

He felt a hand on his shoulder and she spoke from beside him.

"You are very Dosadi, McKie. Astonishing."

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He glanced at her, saw what it had cost her to move here from the door. He slipped a hand around her waist, eased her to a sitting position on the bed and within reach of the rods.

"Tell me what to do."

She stared at the rods and McKie realized it was rage driving her, rage against Aritch, the embodiment of 'X,' the embodiment of a contrived fate. He understood this. The solution of the Dosadi mystery had left him feeling empty, but on the edges there was such a rage as he'd never before experienced.

He was still BuSab, though. He wanted no more bloodshed because of Dosadi, no more Gowachin justifications.

Jedrik's voice interrupted his thoughts and he saw that she also shared some of his misgivings.

"I come from a long line of heretics. None of us doubted that Dosadi was a crime, that somewhere there was a justice to punish the criminals."

McKie almost sighed. Not the old Messiah dream! Not that! He would not fill the role even for Dosadi.

It was as though Jedrik read his mind. Perhaps, with that simulation model of him she carried in her head, this was exactly what she did.

"We didn't expect a hero to come and save us. We knew that whoever came would suffer from the same deficiencies as the other non-Dosadi we saw here. You were so . . . slow. Tell me, McKie, what drives a Dosadi?"

He almost said, "Power."

She saw his hesitation, waited.

"The power to change your condition," he said.

"You make me very proud, McKie."

"But how did you know I was . . ."

"McKie!"

He swallowed, then: "Yes, I guess that was the easiest part for you."

"It was much more difficult finding your abilities and shaping you into a Dosadi."

"But I might've been . . ."

"Tell me how I did it, McKie."

It was a test. He saw that. How had she known absolutely that he was the one she needed?

"I was sent here in a way that evaded Broey."

"And that's not easy." Her glance flickered ceilingward. "They tried to bait us from time to time. Havvy . . ."

"Compromised, contaminated . . ."

"Useless. Sometimes, a stranger looks out of Havvy's eyes."

"My eyes are my own."

"The first thing Bahrank reported about you."

"But even before that . . ."

"Yes?"

"They used Havvy to tell you I was coming . . . and . . . and he told you that you could use my body. He had to be truthful with you up to a point. You could read Havvy! How clever they thought they were being! I had to be vulnerable . . .really vulnerable."

"The first thing . . ."

". . . you found out about me." He nodded. "Suspicions confirmed. All of that money on my person. Bait. I was someone to be eliminated. I was a powerful enemy of your enemies."

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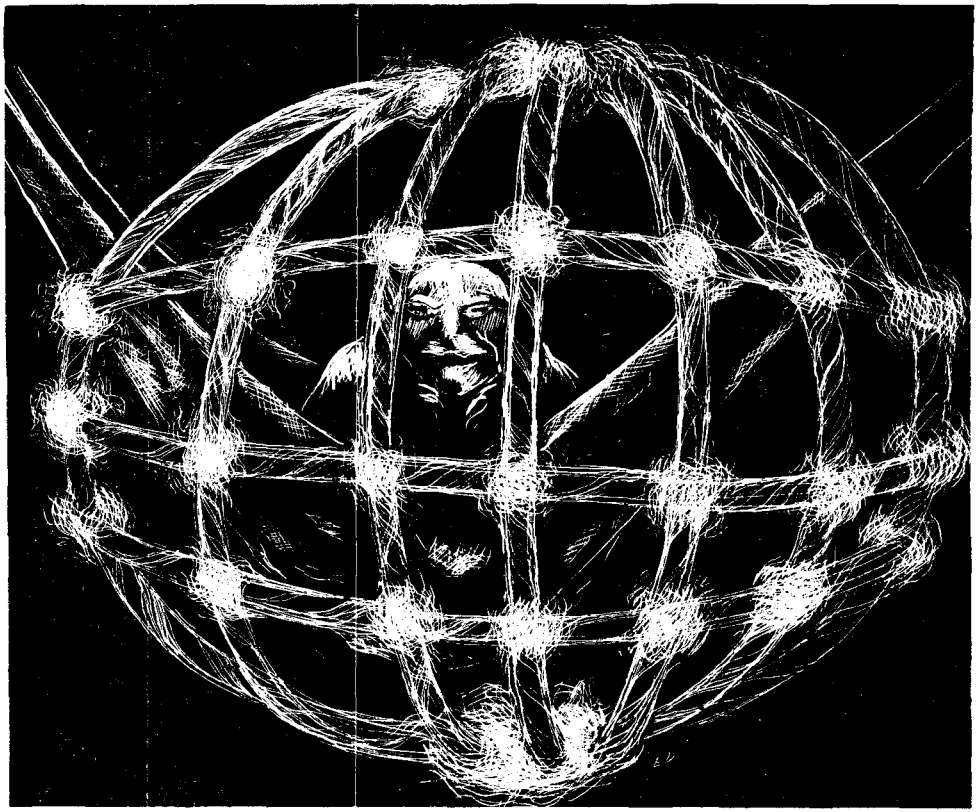

"And you were angered by the right things."

"You saw that?"

"McKie, you people are so easy to read. So *easy*!"

"And the weapons I carried. You were supposed to use those to destroy yourselves. The implications . . ."

"I would've seen that if I'd had first-hand experience of Aritch. You *knew* what he intended for us. My mistake was to read your fears as purely personal. In time . . ."

"We're wasting time."

"You fear we'll be too late?"

Once more, he looked at the shimmering rods. What was it Pcharky did? McKie felt events rushing over him, engulfing him. What bargain had Jedrik really driven with Pcharky? She saw the question on his face.

"My people knew all along that Pcharky was just a tool of the God who held us prisoner. We forced a bargain on that God . . . that Caleban. Did you think we would not recognize the identity between the powers of that cage and the powers of our God Wall? No more delays, McKie. It's time to test our bargain."

* * *

TO BE CONTINUED

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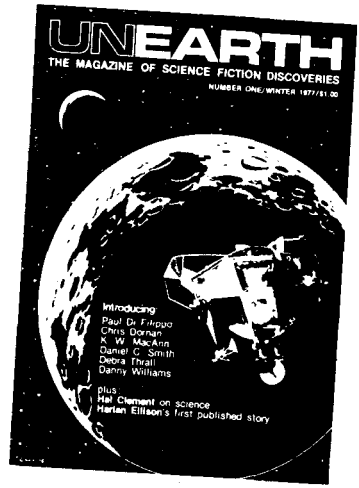

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GALAXY BOOKSHELF

Spider Robinson

Paingod and Other Delusions, Harlan Ellison, Pyramid, 176 pp., $1.25

I Have No Mouth and I Must Scream, same as above

From the Land of Fear, likewise (176 pp. appears to be a popular length)

Love Ain't Nothing But Sex Misspelled, 380 pp., $1.75, otherwise ditto

Partners In Wonder, Harlan et al, Pyramid, 352 pp., $1.25

Approaching Oblivion, Harlan Ellison, Signet, 164 pp., $1.25

Deathbird Stories, Harlan Ellison, Dell, 347 pp., $1.75

The Kin of Ata Are Waiting for You, Dorothy Bryant, Moon/Random House, 220 pp., $2.95

The Judgement of Eve, Edgar Pangborn, Avon-Equinox, 159 pp., $2.25

The Long View, F.M. Busby, Berkley/Putnam, 280 pp., $7.95

The Noreascon Proceedings, ed. Leslie Turek, NESFA Press, 192 pp., $12

The Noreascon Awards Banquet, NESFA, two-record set, $6

A FEW THINGS to get straight before we get rolling this month. Feedback on your feedback, mostly. ("Ah yes," said my neighbor Homer, as he carried feed to his horses. "You get your feedback . . ." he grimaced down at his shoes, ". . . and I get my feed back. I wonder which of us is better off?")

I Didn't Know It Was Loaded Dept.: dropping hints about books you'd like to see is a bush-league stunt, as I should have realized. Please *do not* mail me any more books unless you query first. I'm truly grateful to all of you who did—it's nice to know you care—but now I have four copies of *The*

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Company of Glory and like that, and I'm running out of friends to pass them on to. If there is some book you love so much you just have to try and get me to review it—again, query first. The odds are excellent that I already have it and didn't feel like reading it: you'll only make me guilty. Under no circumstances mail me anything you want returned, because I'm quite likely to lose your cover letter at once (this office looks like a letter-bombed embassy, and my two-year-old is a pack rat). That reminds me—even if I do somehow keep your name and address with the book I can no longer thank you in print: I'm starting to get handwritten letters with the signature typed out, and I will not trade notoriety for books.

Why Don't You Review—? Dept.: I get over a hundred books a month, on the average, and treat 'em just the way you treat your bookstore's sf section: I read what looks interesting to me. If enough people vigorously recommend a book I'll take a crack at it (as happened last month with Crowley's *The Deep*) but like your bookstore, I can't take individual requests.

Will You Please Comment On This Original Manuscript? Dept.: No. Nor will I pay return postage—and American stamps are no use to me. I am involved with the Nova Scotia Writer's Federation's Critical Reading Service, which means I will read and comment on manuscripts *by Nova Scotians, referred through the Federation, for a preset fee* depending on length of the work. It would be unethical of me to do the same for others for free, and frankly I feel that anyone who wants *me* to read and appraise his or her manuscript is wasting their time and mine. My blanket advice to writers is to ignore any and all advice on your stories unless it comes from an *editor* who says, "I will *buy* this if you make the following changes." Enough beginning writers feel differently that I've been bludgeoned into this Federation gig, but I'm not real happy about it. If some dire inner compulsion *forces* you to mail me your stories, please do not staple them. The staples collect in the bottom of the stove and have to be shoveled out.

Do You Have A List Of Your Publications? Dept.: I know this sounds ego-trippy, but you'd be surprised how many have asked. Yes I do, and God *bless* you for asking, but I have discovered that it takes twenty-five working minutes to copy it out longhand. The cheapest nearby Xerox machine costs a quarter—send me one, and return postage (in International Mail Coupons, not worthless American stamps), and I will happily mail you an up-to-date list, including stories sold that won't see print for months yet.

I Don't Know What To Call This Dept.: my personal thanks to each

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and every one of you who has written to me. You have brightened nearly every weekday of the past year; educated, entertained and otherwise uplifted me and Jeanne; and helped me enormously in doing this job. I appreciate.

One Last Thing Dept.: Jody Bosley, one of my most faithful letter writers, is a young lady who is both blind and epileptic, and one of the gutsiest, *cheerfullest* people I know. She is also a staunch sf fan—and it takes upwards of two years to get a book put into Braille when it can be done at all (*Galaxy* is the only sf magazine available in Braille. I hope that shocks you as much as it did me). I strongly urge any of you who have the time and caring to take an hour of your time, read some sf you enjoyed a lot onto cassette, and mail it to Jody c/o Autumn Years Lodge, 424 South Adams, Fort Worth, Texas 76104. Postage is free; just type FREE POSTAGE FOR THE BLIND OR HANDICAPPED in three lines, all capital letters, where you would ordinarily put a stamp, and the government picks up the tab (this works from Canada too; don't know about other parts of the world.).

I know Jody'll appreciate it; I'd take it as a personal favor; and you might just acquire the damndest pen pal you ever had, a friend well worth knowing.

And now, at long last, the Harlan Ellison bonanza I've been promising you for the last four issues or so.

One day, several months ago, I noticed that there was a mighty shitload (note: 2.5 shitloads = 1 mighty shitload) of Harlan Ellison books being piled under my mailbox by a weary-looking postman (I could tell they were Harlan Ellison books because the mailbox shied timidly away from them), said, "Right—there's the next column right there," and announced same in the column I was writing at the time.

Ha.

Anyone who reads seven books of Ellison in seven days will spend the eighth in Intensive Care: do not exceed the recommended dosage, do not attempt to drive a car or operate heavy machinery while reading, and discontinue use if emotional exhaustion occurs. The Surgeon General has determined that danger to complacency increases with the amount read, and you can take that to the bank.

So what I did, I took seven Ellisons, arranged them in chronological order, and read one every couple of weeks, slowly, and *that's* why it took me so long, okay?

* * *

The earliest Ellison I could get my hands on was his very first, *Web of the City,* but I can't cover that here because Baen won't let me do mainstream (or else I'd sneak in John D. MacDonald, William

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Goldman and the new David Bromberg album, to name only a few). The earliest *sf* Ellison Pyramid sent me turned out to be the first Ellison I ever read, lo these many moons ago: *Paingod and Other Delusions*.

Hoo-boy! Such ambiguous feelings. Look: the Heinlein quote on the cover is strictly accurate—this book is raw corn liquor. I remember with fondness my first hit of raw corn liquor. But these days I drink Tullamore Dew (when I can get it).

Paingod contains some of my favorite stories of all time: the title story and "The Crackpots" are engraved on my brain. But rereading them ten years later was . . . enlightening. Harlan and I had both grown since. The ideas were as striking and brilliant as I remembered, but the craft, the execution of those ideas, might best be described as impulsive. As Anne McCaffrey says in the blurb, Harlan ". . . writes as if an inner fuse is about to blow before he can get all the words on his pages." Fine—but this is not how to achieve precision. At that point in his career (What? Twenty years ago?) Harlan's talent was simply so damn ferocious that he had nothing like control over it. Often, as in "Wanted In Surgery," he expended yards of his guts on stories with moronic premises.

All right: I winced from time to time. But the sheer incandescence of Harlan's energy carried me handily through the book, and " 'Repent, Harlequin!' Said The Ticktockman" and "Deeper Than Darkness" are acknowledged genre classics. The only stories I actively disliked were "Bright Eyes" and "Wanted In Surgery," which (since I count both introductions plus the between-stories-commentary as three "stories") gives the book an 85% on the Spidermeter. You could do worse.

* * *

You could, for instance, pick up *I Have No Mouth and I Must Scream*.

Everybody has their own opinion about the title story; it's one of the most famous stories in our genre. I will concede that it is a work of genius but I don't want it in *my* living room, thank you. It contains more ugliness per line than anything else ever written, and if you find that fascinating, go to it.

On similar grounds I loathe "World of the Myth," and I didn't need the copyright page to tell me that "Big Sam Was My Friend" and "Eyes of Dust" were extremely early Ellison (1958 and 59 respectively).

On the other hand, "Lonelyache," "Delusion for a Dragon Slayer" and "Pretty Maggie Moneyeyes" are among the best stories Harlan ever wrote, pure dynamite in form and content. Here we see the talent being broken to harness, rapidly maturing. By the time the smoke clears, we're back up to

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50% on the Meter, and itching for the next one.

* * *

And sure enough, it's a peach. Although eight of the eleven stories in *From the Land of Fear* are "early" (1950s) Ellison, all but one of them hold up very well indeed. Curiously, there are no smashhit superfamous classics in this collection—and yet the average quality is higher than that of *Mouth*, which had four such. A lot of them are short, but *perfect*; "Life Hutch," for instance, is a masterpiece of construction and suspense, and "Battle Without Banners" still wrings out my heart like a dishrag. "The Time of the Eye" in particular reads like *much* later than 1959 Ellison, and "The Sky Is Burning," one of the earliest stories in the collection, is also one of the finest.

But my runaway favorites are the two versions of "Soldier," a story vaguely like "A Christmas Carol" written by the Marquis de Sade. I can't decide which I like better: the original short story or the TV script it became. The two are quite dissimilar despite the fact that they share protagonist, situation and essential theme, and both are beautifully realized. I learned a lot about the mechanics of script adaptation, too.

About a 90% on the Meter.

* * *

So I staggered on to *Love Ain't Nothing But Sex Misspelled*, and boy was I prepared to hate it from the title.

I state categorically: this is the finest collection of Ellison I've ever seen, and one of the best books I've ever read.

There's a story in there, "The Resurgence of Miss Ankle-Strap Wedgie," that if you read it you better blink a lot, because it'll bake the moisture right off your eyeballs. There's a story called "Neither Your Jenny Nor Mine" which will raise blisters on your forebrain. There's stories there that will make you shout aloud, will cause your eyes to twitch and your stomach to do the boogaloo, will (as David Bromberg says) "turn your blood to water, your brain to jelly . . . your toes to cupcakes . . ." *and* cure your hemorrhoids all at the same time.

This collection is what the doctor ordered and why the preacher danced, and I'm damned if I can imagine a better use for a buck seventy-five. Here is the Ellison talent in fullest control, producing stories that are as much fun to reread as to read the first time, that I'll be coming back to years from now, to learn from.

There's no point in citing the stories by name. Every one is a stone masterpiece, and taken together they taught me more about love than the average Sturgeon novel. Call it 120% on the

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Spidermeter, and lemme at dat next one!

* * *

Which turns out to be nearly as enormous, nearly as good, and twenty-five cents cheaper.

Oh, there are a couple of so-so stories in *Partners In Wonder*, and one certifiable piece of cheese—but Jeezis, what fun! What it is, see, is a whole book of collaborations, short stories co-authored by Harlan with practically *everybody*, plus introductions (incorporating biographical sketches of the said collaborators) which are as much fun as the stories themselves.

The Bloch/Ellison duet of Jack the Ripper stories have since been immortalized on record by Alternate Worlds Recordings (I'm expecting my review copy any day now), and I'm told that the playback literally scared Harlan out of the studio. "Brillo" (with Ben Bova), "Street Scene" (Laumer), "Survivor #1" (Slesar), "Up Christopher to Madness" (Davidson), and of course the incomparable "I See A Man Sitting On A Chair and the Chair is Biting His Leg" (Sheckley—who else?) are all among the funniest goddam stories I've ever seen, each in its own way—I guess it's easier to laugh together than cry. The serious stories don't come off quite as well—only "The Song the Zombie Sang" (Silverberg—again, naturally) was really brilliant. But

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most of them were fair-to-good.

110% on the Meter. The hell with one-a-week, where's the next one?

* * *

Shoulda quit while I was ahead. *Approaching Oblivion* purely spoilt my digestion.

First I tripped headlong over an introduction which could be described as a trumpet blast of rage, a scream of despair. "As for me and you in this literary liaison, well, I've paid my dues. Now I'm going to merely sit here on the side and laugh my ass off at how you sink into the quagmire like the triceratops . . . And if you hear me sobbing once in a while, it's only because you've killed me too, you fuckers." From there (whew!) I stumbled into a bleak landscape of stories which nearly all had despair as their keynote. Only "I'm Looking for Kadak" (an extended Yiddish lesson) and "Erotophobia" (an extended wet-dream) tried to lighten the mood, and perhaps because of the setting, both failed, succeeding only in looking distinctly out-of-place. "Cold Friend" and "One Life, Furnished In Early Poverty" are brilliant stories, and milestones in Harlan's career in that if they didn't have his byline on them, you might not have guessed they were his—but again the setting (and the echoing scream of that introduction) make it hard to appreciate them. "Catman" I actively hated.

No between-story intros; total 45%.

* * *

So I snatched up the last one in the pile, *Deathbird Stories,* and was considerably reassured. I reviewed the hardcover version over a year ago, from galleys, and found the paperback even more impressive than I had remembered. No sense recapitulating much; with the exceptions of "On the Downhill Side," "Corpse," and "At the Mouse Circus" (which three I plain couldn't understand), all of the nineteen stories in *Deathbird* are excellent, and at least eight of them are genuine masterpieces. Taken together, they left me happily exhausted and optimistic for the future. I think Harlan is very close to a very important truth, concerning despair. We'll see.

To round out this overview of twenty years' worth of Harlan Ellison, I should add that Harlan's own reading of his classic "Shatterday" (on Alternate Worlds Recordings' disc #AWR 6922) is as of this writing a finalist for the 1977 Best Dramatic Presentation Nebula. Since its competition appears to be *Logan's Runs* and *The Man Who Fell In Worth,* it ought to win handily.

What, you want summatory remarks? At these prices? Okay. Taken together (the way I said you

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shouldn't take them), these books clearly show that over two decades Harlan has progressed from damn' promising talent to a genuine Writer of Stature (no pun intended), following a manic-depressive cycle that has a kind of consistency and a weird beauty of its own. I predict that his forthcoming *Prince of Sleep* (contracted to Dell but uncompleted as of this writing) will knock us all on our ass. Its middle third is the magnificent novella which once ran here in *Galaxy* as "The Region Between" . . .

All praise to Pyramid, Signet and Dell for making all these stories available again in paperback.

* * *

The Kin of Ata Are Waiting for You (formerly published as *The Comforter*) is "the best yet in the newly emerging genre of women's fantasy fiction," according to someone named Laurel in something called *Amazon Quarterly*, and a publication called *Amazon Artworks* describes it as a "beautifully written feminist novel." So said the back-cover blurb.

Consequently I expected to find it a large chunk of used food. I have no more use for women who like the image of the Amazon than I have for men who admire Attila The Hun, and "women's fantasy fiction" sounds like it's *intended* to not appeal to me (how about "short people's fantasy fiction"?—they're half the race *too*, lady.). How impressed would you be with the Taj Mahal if all you knew about it was that a couple of termites said it tasted terrific? I freely admit I expected *Ata* to be this column's sacrificial victim.

Imagine, then, my surprise and delight when I found that the book is a gem. And this *despite* the fact that the plot has been done many times before by flashier writers. It's the old wheeze about the contemporary-man-type hero transplanted to a primitive society whose mores freak him out—which chump only gradually realizes that the primitive society is a utopia and the "ignorant" natives are more together than *he* is. Sturgeon's used several variants of it, Chad Oliver's excellent "Marginal Man" is another example that springs to mind, and this book is one of the very best I've seen.

Feminist, phooey! It's *humanist*, with malice toward none, a deeply spiritually rewarding book that taught me some things. And at the same time it's an exciting read that never lost my interest—the opening grabbed me by the scruff of the collar and *yanked*. And it features some of the cleanest, sparest, *simplest* prose I've seen all year, not a superfluous word in the book. Like six brush strokes on rice paper, exquisite.

It's a genuine shame Ms. Bryant had to market this as a "feminist" book. It's "co-published" by Moon

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Books (I'm sorry—it makes me think of my outhouse door), an independent women's publishing company, and Random House, which does the distributing; and having thus decided on a minority audience they printed up a fat ten thousand copies of a hardcover-sized paperback and priced 'em at three dollars a hit. Consequently even the few of you who are perceptive enough to realize that my taste is impeccable and will buy a book just on my say-so will probably be unable to find or afford it.

Which is a shame. It's a peachy book, and Dorothy Bryant is a writer whose byline I'll look for. If this had been handled right when it was first released in 1971, it could have been a Hugo finalist.

* * *

Baen apparently hijacked the Avon shipment and ripped off the review copy of *The Judgement of Eve* (uttering, no doubt, the proverbial Editorial "Wheee!") but who could blame him? Fortunately, a generous fan who shall renane maimless mailed me a copy which arrived on the same day that the Avon review shipment showed up one light. Don't worry about it, Jim. Really. [*I have* no *idea what he's talking about.—Ed.*]

Don't let the strikingly ugly cover painting by Patrick Woodruffe dismay you, folks—this is some of Edgar's best stuff, just heartwarmingly good. There are his usual vibrantly alive characters, his profound insights, his merriment and his sorrow and his gusty *appreciation* of both, all the ingredients that add up to a continuous warm glow in your middle. The central question of the novel is nothing less than "What is love?" and it answers it damned well in my opinion. Typical Pangborn, in short.

In fact, I'd be praising it unreservedly—if it wasn't for the damned ending, which seems to me like a cop-out. I suspect—I would like to think—that Edgar wanted to end it with a menage-à-quatre but couldn't get the publishers in 1966 to accept that. This may not be true—but then, as Edgar himself said on page 61, "If there were only one kind of truth or only, say, half a dozen, the poor damned human race would have had to close up shop *before* discovering the control of fire."

One of the best in Avon's SF Rediscovery Series, nearly as good as *A Mirror for Observers* (their other Pangborn entry. Are they going to do *West of the Sun*?).

* * *

The Long View is the final third or so of Buzz Busby's massive Rissa Kerguelen saga, the first two-thirds of which (aptly titled *Rissa Kerguelen*) I reviewed here favorably a few months ago. It had been a long time between books,

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and the first was so enormous and detailed I had frankly forgotten parts of it by the time I settled down with *The Long View*. But I managed to hang on, and enjoyed the finish a bunch. Incredibly, in that wealth of color and detail there are threads that began in the opening chapters and ran invisibly through both books until, jerked upon in the last pages, they made the whole weave fall together in a pleasing pattern. Busby reminds me of Larry Niven, in his combination of multidisciplinary education, outrageous imagination and rigorous logic.

I can't honestly call this a Great Book—it remains, in the end, good adventure and no more. I don't know that it couldn't have done with some editing and trimming. But it's *cracking* good adventure, with a really strong protagonistperson and some dynamite surprises planted at the end, and that's a lot to ask in these troubled times.

Make note: *Long View* is not really a self-contained entity. This is not Busby's fault nor Berkley's: economics dictated that the book be cut in two, and they did their best. But the upshot is, if you didn't read *Rissa Kerguelen*, you don't want just this one.

On the other hand, if you *did*, you don't want to stop now, do you?

Dis is de climax.

* * *

NOTICE TO SUBSCRIBERS

Due to unavoidable technical difficulties there has been some disruption in our scheduling and we have been forced to adjust our cover dates accordingly. *All subscriptions will be adjusted so that subscribers will receive the full number of issues to which they are entitled.*

Galaxy very much regrets any inconvenience this may have caused, and we are confident the situation will not recur. Thank you for your patience.

—THE MANAGEMENT

Ever been to a Worldcon? A World Science Fiction Convention, a gathering of the tribes, complete with Hugo Awards Ceremony and Banquet and Art Show and Huckster Room and The Sing-Along In Gordy's Room and Panels and like that? If you haven't, there's no way on God's earth anyone can tell you about it. Each one is unique, and they seem to have in common only madness, splendor, and above all confusion (this is a con's power source: con fusion) (if my puns get under your skin, does that make them soft-pore corn?). But if you want a taste of one of the legendary ones you missed (I did, dammit) or if you *did* happen to be at the Boston Sheraton on Labor Day of 1971

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and you want to re-evoke some of the divine insanity, by all means pick up a copy of *The Noreascon Proceedings*, a transcript of every official word spoken at the Twenty-Ninth World Science Fiction Convention. It includes all the exceptionally fine panels and speeches (by such notables as Ben Bova, Lester del Rey, Joe Hensley, Robert Silverberg, Joe Haldeman, John Brunner, Katherine Kurtz, Kate MacLean, Isaac Asimov, Cliff Simak, Larry Niven, Terry Carr, Charlie Brown, James Gunn, Bob Shaw, Poul Anderson, Gordy Dickson, Fred Pohl, Kelly Freas, Karel Thole, Jack Gaughan, Eddie Jones and John Schoenherr), plus the Banquet and Awards Presentations and Acceptance Speeches with Toastburger Silvermast (pay no attention; keep on going), plus membership statistics, art show and masquerade awards, business and financial reports, and quite a number of juicy photographs of the events and festivities (many of these by the acknowledged master of fan fotography, Jay Kay Klein). Leslie Turek's editing job is superb.

I know twelve skins seems like a lot of bread, but look at it this way. At the last Worldcon at-the-door registration was over *four times* that, plus travel, accommodations and meals. Here you're getting an early-registration price, saving yourself the ancillary expenses, *and* you have the assurance of knowing in advance that the Con is a good one.

And if you really want to experience the *feel*, the intangible zeitgeist of a Worldcon, but can't afford to go to Miami—just take this book down to Grand Central Station or your local equivalent, wash down five hundred mikes of acid with two quarts of beer, and try to read it. That'll be close. (Note to the humorless everywhere: I do not seriously advocate this procedure. I don't recommend that humorless people attend Worldcons, either.)

Oh yeah—NESFA (New England Science Fiction Association, which now distributes the book) also has available records (phonograph type) of the Banquet and Hugo Awards—a two-record set, in fact, for only $6. It includes a dirty limerick by Isaac and many other chuckles, and from this transcript it oughta be dandy. It and the book are available from NESFA, Box G, MIT Branch Post Office, Cambridge MA 02139.

* * *

So ends another month. Let me quickly thank you again for all the letters, repeat the address for those who missed it (The Red Palace, R.R. #1, Hampton, Nova Scotia BOS 1LO), and leave you with a pun of singular atrocity:

What do you call a drummer who stands three foot two, lives in a Paris subway station, and keeps *perfect* time?

(Answer: a *Metro* gnome.) ★

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HIS NAME WAS Skitch Herron, and when I first saw him he was in on his back in an oxy tent, trying to breathe and not quite making it. His breath was making little patches of fog on the plastic and his chest was stuttering; his eyes, when he turned them toward me, were deep and empty and lonely. He blinked twice at me and I nodded; I was still wearing an earring, the old style, and a nod was enough.

He's dying, Kelly,'' the doctor said. I thought his voice was too loud and wanted to tell him to shut up. ''He knows it.''

Herron looked at me—he hadn't taken his eyes from me: he knew who I was and why I was there—and blinked his eyes again. He knew.

''I'm dying,'' he said. The voice came out of the speaker above the bed. I waited, there not being much I could say. I'd seen dying Spacers before, a lot of them, and they all looked the same way: thin, their muscles atrophied and pulpy at the same time, gasping for air even in a tent.

''I want to go back to Earth, Kelly,'' he said. ''Before I die.'' They all wanted to go back—every one. After Jumping, the ships, the Cedrics, the planetfalls, and everything else, the Spacers wanted to come home. To die. Always.

''Okay,'' I said. ''I'll bring you home.''

* * *

We grew up wanting to be Spacers, remembering the stories about the early ones—Glenn and Armstrong and O'Dell—and the ones who followed them:

Kanderson, who died on Deimos trying to save the bubble when an oxygen tank exploded . . .

Matterly, bleeding to death inside his suit, trying to link up power lines when Passenger Four walked into an asteroid spray . . .

Malik, who touched down on seventeen planets, a record never broken, and who finally bought it on a tiny rock no one had ever heard of . . .

There'd never been anything like it—the Crusades, the westward expansion of nineteenth century America, World War II: they were tiny, isolated events compared to the second push for Space. This was a whole world—the Russians, Japanese, all of us—building and hoping and watching.

We were the eighth Spacer class, the Miskin Class: he had been killed in Sector Five—all our heroes were dead—when the scout ship he'd taken down had crashed. The light ships only carried one scout then, so that there was no way of going down for him, but he kept sending up data—soil and atmosphere information mostly—until his voice grew so weak that it was unintelligible. Years later they found him—the ship pitted with age, his body still inside—and we felt good knowing that we had not been ill-named.

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It was a long, tough grind—the Commission saw Spacer training as a combination boot camp, research laboratory, and cheap labor source. We were thrown up into space with almost no training and we worked for days to assemble the first of the microwave beamers, the first of the Floats, the firsts of almost everything. The men who couldn't take the null-grav threw up into their suits and went back down; the rest of us moved on to the shuttles, the haulers, and finally the Light Ships.

We drilled constantly, studied every diagram, every wiring chart, until we knew them in our sleep. We had our own jobs, of course, but we had to know everyone else's, too: a meteorite that holed the outer skin wasn't going to ask if we were at General Quarters.

We drilled constantly, hitting the pad and then the GQ whistle going off an hour later and the Master shrieking "Up, up, into the ship, into the ship" at us, and then the fifty of us, sleep-fogged and nervous, running through the night to the dials and gauges.

"What's the pressure in an Anderson tube?"

"Give me the numbers of the seven Emergency freqs."

Drilling and drilling and drilling until the fifty of us—the forty—the thirty—twenty-seven—twenty-four—were like brothers, until we knew the ship like we'd once known our own rooms, until we thought that the constant smell of plastic and oil and recycled air was normal, and the constant hum and vibration and muttering of a thousand small fans and motors and pumps and the shake of the ship was a part of us; until there was only one thing left: Jump and Jump Space. We'd be Spacers then. Spacers, we said, and couldn't believe it was really happening to us.

* * *

Going down, the jockey let me handle the ship until we touched the outer beacon. He didn't have to, of course, could have gotten in trouble if anyone else had known. But he knew what it meant to me—watching the slow climb of the red needle as the anti-grav unit kicked in, worked itself back down. Feeling the hum of engines through the palm of my hand, I could almost feel as though I were working again.

Herron was unconscious when I checked him. Just as well: as I strapped down, I could feel the grav on me and I forced myself to take breaths, wished I was back on the Float, in Space, in Jump Space. And I knew what the grav was doing to Herron's lungs; I knew what it was doing to mine

* * *

"Stand by for Jump."

I waited by medical stores—my normal battle station—sitting, wait-

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ing, fingers tingling in excitement. Jump . . . not one person in a million had been through it . . . I'd be a real Spacer then . . .a Spacer.

And then . . .nothing: they had told me that some men would scream in agony as the ship Jumped, that others would moan or throw up. I waited for something to happen.

The doctor looked at me. He was moving his mouth back and forth, rubbing his fingers together as if they itched. After a while he stopped.

"We're through Jump," he said.

"I didn't feel a thing."

"You will. Jump is like nothing else."

I was halfway through my pilgrim check—going down the ranks of the men, women, and children in Long Sleep, headed for one of the outer planets—when I began to feel Jump.

The ship tingled in Jump, almost imperceptibly, but it was there, a vibration so small that men with one drink in them—soldiers and sailors have been making illegal liquor for centuries—couldn't feel it, but it was real and it made everything glimmer and shine in ways they didn't in normal space.

We felt more alive in it—I did anyway and could run through the entire twenty-four on two hours of sleep, week in and week out with no loss of efficiency. Food tasted better, music sounded better, and when we went into the iso room for the required daily workout, we could pull more, lift more, and walk out feeling better than ever before.

But what made it the best was the view ports. Even the physicists weren't sure what made the sky inside Jump look the way it did—and they had instruments on it all the time, spools whirring and dials ticking off numbers, trying to learn what was out there—but it was no longer just the dots and pinpoints of light we could see from subspace. Even the ether glowed and the view was red or green one moment, blue and yellow the next; it would lighten for an instant until the whole ship was bathed in a soft, yellow light like the old oil paintings, and then the light would fade to a blackness so absolute, so deep that men seeing it for the first time would tremble in terror. We were falling, falling, falling into it . . .

And that would fade, too, become green lightning hurling at us, dancing on the brow of the ship; shimmer to a turquoise that washed over us; go to a red, a pale yellow, back to black. . . .

* * *

Coming into the dome, the colors were gray and brown and a pale, governmental green—the semi-clear dome itself streaked with dust, scratched by the blowing sand, the squat shuttle ships stained with grease and dirt, the shelter and storage flimsies tired and faded: even

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under the dome the sun was strong.

Even the smell was wrong—dust and oil and recycled air—when they write a history of the Space Movement, they'll have to say that it was done on someone else's oxygen—but not the way it smelled aboard ship. Not even the way it smelled aboard the Floats. There was a dirt smell to it—and the grav hurt my lungs, made my legs ache.

* * *

On my second trip out—another run to drop pilgrims and stores on another new planet—a man named Darnyell came into Medical. When he coughed, he said, he could taste blood.

"I want to go home," he said.

"Home?"

"Earth, Kelly. I want to see Earth again."

He lay down on one of the benches—we had a Rodgers Variable Grav unit and there was just enough pressure to make a man want to lie down—and he talked about home, about growing up, about trees and mountains and what it had been like to ride a horse.

We broke out of Jump, came close to planetfall, and held Reveille on the Pilgrims. Darnyell, in pain now, and semiconscious most of the time—he was coughing blood by then, a week after he came into the office—could sense the presence of the planet and he wanted to be down there.

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"It's not Earth," I told him.

"It's land, Kelly. It has flowers and water on it—that's why the pilgrims are going. Ask them to take me down, Kelly. Ask them."

I went to the Captain and asked. He said there'd be no way to get Darnyell back: the shuttle would meet us in orbit, off-load the pilgrims, and we'd never see them again.

"He'll be dead in a few days anyway," I told him.

"Okay." I helped load Darnyell aboard—even in the five percent gravity of parking orbit he couldn't walk—and then to strap him in.

"Thanks, Kelly," he said. There was a pink froth on his lips and I wiped it with a towel. "I won't forget this."

An hour later he was dead. As the shuttle dropped out of orbit and into point-five G, then point-six, point-eight, his heart and lungs couldn't take the extra gravity and he died.

Without seeing a tree.

* * *

From the outside, it never looked like much—just a dome in a corner of the settlement dome, with the dust and smoke and noise outside it. When I brought Skitch Herron into it, he was still unconscious.

He blinked slowly when I opened the door of the Rest-Easy and the air hit him—it always hits them—and he tried to sit up.

"Easy," I said. "Not yet." I unlocked the stretcher, put it onto the ground, dropped the wheels. "Now." I gave him a shot and waited for it to take. He stopped strangling on the sputum and managed to sit up. I had to help him onto the stretcher; with the sickness, with the five years he'd spent in null-grav, his muscles didn't work anymore.

"Oh, God," he said. "I didn't know." I put the pillow under his head and reached for a blanket. It was spring—it always was—and some of them couldn't take the temperatures. He shook it off and blinked his eyes against the sun, the lids of them crusty and old so that even shut they didn't help much.

"I forgot," he said. He blinked his eyes some more and I let him look for about three minutes before I pushed the stretcher.

The field was green and it was full of daisies. There were flecks of white painted onto the blue sky. I could hear the birds singing—the field was planted with special bushes for them—and a squirrel ran across the path in front of us.

"How could I leave this?" He coughed again—the shot does that to them—and I leaned over to wipe his mouth. "I can hear ducks, Kelly."

"We'll go there," I said. We went through the tall grass to the pond. There was a sandy beach, tiny footprints in it, a pail and shovel, and shadows flitting through the water.

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"Can't see the fish," Herron said. "Just the shadows." He coughed again and I had to wipe his mouth. "Thanks." From across the pond the ducks heard us and began to quack over, rippling the lily pads as they swam.

"I have some bread," I said. "They'll want it." I propped another pillow under him so he could throw. The water was twelve feet away and he could barely reach it. The ducks fought for the bread, quacking. I lifted Herron off the stretcher and put him onto a blanket, then put a basket with wine and cheese beside him.

He looked at it. Spacers didn't get wine and cheese very often. I cut a piece of cheese for him, poured him some wine. He nibbled, then sipped.

"This is either Earth or . . ." he coughed again . . . "the condemned man's last meal." He looked at me.

"It's Earth," I said. "You made it, Skitch." He looked at the wine again and then winced as pain stabbed through him.

* * *

Darnyell had been the first to die that we knew about—but he wasn't the first: other ships lost men, too, and we'd hear stories when we docked to dump pilgrims or to load stores: "Cable lost two men . . . Morgan is dead."

It was surprising, scary in a way, but mostly unexpected because Spacers—who grew up worshipping dead men—weren't supposed to die.

Explorers we could understand dying. They asked for it and when they piled up a scout ship on one of the crazy-gravity planets; ran for weeks with Big Eye and then collapsed, babbling, from lack of sleep; or when they went nuts in Jump Space and never came out, so that they rattled around the universe like ghosts—we could see the ships on the Jensen Scope, but no one ever saw *them* again—we said "That's the way it goes" and someone named a Float or a ship or Spacer class after them. But *we* weren't supposed to die.

But we did. No one was sure why. They'd have us retain the bodies for them if the men died in Jump Space, but they never learned much. Maybe the null-grav, some people said, and they wanted us to spend more time in the Rodgers unit; maybe the extra radiation; the hum in Jump; lack of sunlight; deficiency of an undiscovered vitamin.

Whatever it was, men were dying. They came into sick bay tired, some of them coughing blood, all of them wanting to go home. And that was the strangest thing of all.

Space was where we wanted to be. Sure, we talked of home and when someone brought out pictures of the Titan Mountains or the Green Hills of Bron, we'd admire them. And from time to time we'd make a drop to throw a drunk or a laugher. But when we broke the pilgrims out

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of Long Sleep and they clustered around the view ports to see their new planet, we let them look: seeing a planet was nothing compared to Jump Space. And if someone wanted to go back to Earth to flowers and trees and bugs, we joked, then he must be sick. And we laughed it off and decided that Space was worth the risks.

And then, one day we docked at Titan Float One and I could taste blood.

* * *

The boy was five and the girl was eight. They came over the hill, the girl in front, protective. We watched them come toward us, singing, pushing through the daisies and the tall grass.

Herron just looked at them. He held a glass of wine in one hand and didn't touch it at all. When the kids were eight yards away, he waved weakly to them, as if afraid they'd vanish. The girl looked at the boy, then to us, back to him.

"Wave," she said. The boy waved and dropped his hand quickly.

"I have to go to the car," I said. "They might want to look at the ducks with you, even throw bread."

From thirty yards away I could watch them, the children coming closer, Herron smiling, holding the bread, trying to throw the bread to the ducks, but not strong enough to hit the water.

The children came closer. Herron smiled and touched the towel to his mouth. The girl took a piece of bread and threw it to the ducks. They quacked, she laughed, and the little boy clapped his hands. Herron gave him a piece of bread and the boy threw it. I was hoping that Herron couldn't see how far the boy could throw. I could hear what they were saying from the transmitter in the basket.

"What's your name?"

"Skitch. What's yours?"

"Anne. This is Moby. He's my brother."

"Hi, Moby." I could see Herron touch the towel to his mouth again. In the gravity, his lungs were shredding.

"How come you're here?"

"I came to see the ducks."

"You don't live here."

"I'm a Spacer."

"A real Spacer?" I could see their eyes get big. To a kid whose chair-bound father worked as a lawyer or supply clerk, Spacers were magic. They were brave and daring and romantic with the earrings and tired eyes, smiling at pretty girls, posing for the posters which showed the rocket ships blasting off from an eroded moon.

"I'm a real Spacer," Herron said.

The kids inched in to see his earring. "What's the Milky Way like?"

"Did you go to Io?"

"Can you fly a ship?"

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"Did you see a monster?"

He told them—and most of the things were true: what it was like to take out a scout ship, to have the Cedrics screaming and rocking, threatening to tear the ship apart; what the sand demons looked like on Andros; how he had flown into Titan and seen the waiting mountains; what a comet looked like as it rushed toward the ship and how it dissolved from wonder to nothingness; and he told them about Jump—the slow whine and then, for him, a touch of blackness, then the hum, and the walking around in delight.

* * *

"You can't jump again," the doctors told me. There were four of them standing around me, others listening: I'd been moved from Float One to Three, the one with the hospital.

"Can't jump?" I couldn't believe it. "I have to . . . I'm a Spacer."

"We think Jump is part of the cause," they said. "Shuttle pilots don't cough blood. Float men don't. Only Spacers do—and you're one of the men who has it."

"If I can't be a Spacer, I don't know what to do," I said. "They don't need many corpsmen on Earth, do they?"

"We don't think you can go back to Earth, either. Whatever you had—have—has been arrested . . . we think. At least you're not losing blood anymore. But we think that if you ever hit full gravity again, your lungs will rupture."

"Not much of a choice," I said. "No Space and no Earth either."

"There are still things you can do. You can work the shuttles, the Float, any of a dozen other places."

"I'm trapped."

"It's better than being dead."

I looked at him—the oldest of them watching. He had the look that they all have—all the Earth-bound, gravity-bound, floor-trapped, non-earring people do: half arrogance, half fear and self-consciousness.

"Have you ever jumped?" I asked him.

"No."

"How do you know it's better than being dead?"

Nobody said anything for a moment. I limped to the viewport and looked out to the shuttle being tied up, the hunkies floating around, attaching lines and hooks, and beyond it—the pinpoints of light that were the stars I'd never get to see again, all the places I'd never get to: no more Cedric scream, no more Jump, no more planetfall.

And no trees or flowers or bushes either. No waterfalls or chickadees . . .for me or for the thousands of other men who dreamed of a ring, who'd made it, and who couldn't go back anymore . . . suddenly I wanted to see Earth again . . .

I turned back to the doctors.

"I have an idea," I said.

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* * *

The kids sat there listening to Herron talk, touching him from time to time, and he patted their heads, talking and coughing into the towel. I let him talk a while, then he asked the kids some questions—where they went to school and what kinds of foods they liked and what were they going to be when they grew up—Moby said he wanted to be a Spacer like Skitch—and I walked over. Herron looked at me and I knelt beside him to give him a clean towel. The inside of the old one was pink and frothy.

I looked at the kids, over to the ducks, to my watch. The shot lasted thirty minutes at most; we'd been there twenty.

"Aren't your folks going to miss you?" I asked the kids. Herron's eyes fixed on me for a moment as though I'd stolen his toy, then went to acceptance.

"We have to be home at four," Anne said. "Is it almost four now?"

"Almost," I said.

"It was good to talk to you, Mister Skitch," she said. "Say bye to Mister Skitch, Moby."

"Bye, Mister Skitch."

"Wait," Herron said. He held his hand up. His eyes were damp. "Here." He took his bracelet off—it was from the hullmetal of ANDRESHKOV, the first of the Light Ships—and handed it to Moby. He unscrewed the earring and gave it to the girl. "Take 'em," he said.

"Thank you." She said it very softly. Then she leaned over and kissed him on the forehead. She turned, took her brother's hand, and they left us. We saw them walk up the hill slowly, the daisies falling around them, springing back to cover their path. They turned and looked back once to wave. We waved back and they were gone.

"I told them the truth," Herron said, "about being a Spacer. The work, the ship, Jump. I wouldn't swap it . . ." He coughed into the towel again and it was black.

"I know . . .you were a good Spacer."

"I was young once . . . like that kid, Moby . . ." His whole chest convulsed and he sprayed the blanket with flecks of red-and-black foam. "He wants to . . . they'll have it cured . . ." He began coughing again, couldn't get the words out. He let me lie him down, head on the pillow, turned so that he dribbled onto the blanket. He clenched and unclenched his fists as if trying to gather strength.

"We're not on Earth," he said, fighting the pain as the shot wore off. "I think it's the moon . . . a dummy."

"Earth," I said.

"I'm dying, Kelly. Don't lie." The words were crawling out of him, tiny, red balloons breaking on his lips.

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"It's Earth," I said. "This is Pennsylvania."

"Think it's a game . . . make the Spacer think he's made it."

"Pennsylvania." I had to make him believe it.

"Right." He squeezed my hand as hard as he could; I could have broken the grip with two fingers. His eyes caught mine and all I could see was the guy who'd been young once, seen Jump Space, remembered it, and was dying. He smiled and the shot broke—he convulsed as the pain hit him like a hammer.

"There's another shot," I whispered. I touched his mouth with the towel and he shook it away.

"There's another shot?"

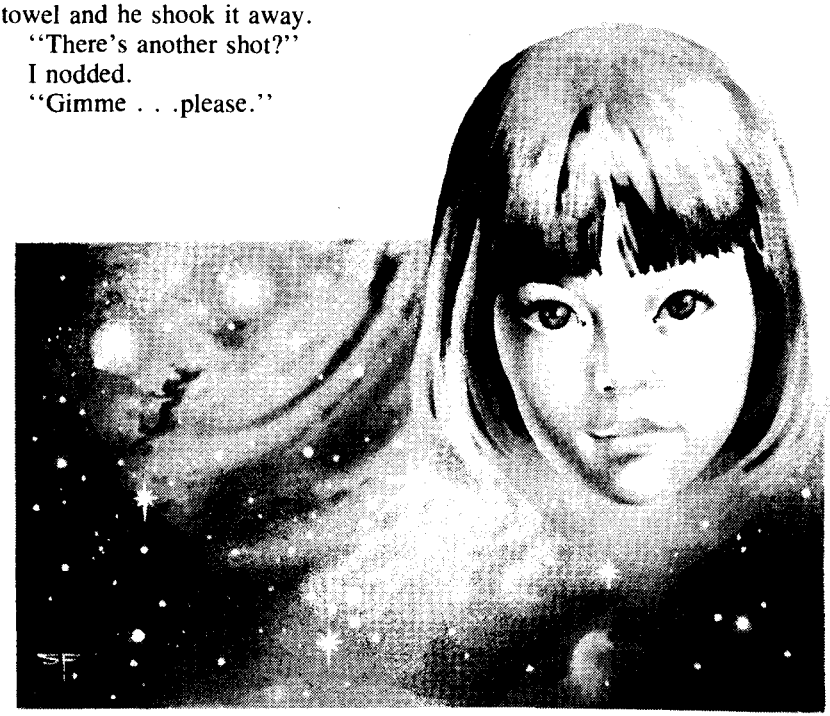
I nodded.

"Gimme . . .please."

I did. Then I waited five minutes and had a cigarette—I always did—before I put him onto the stretcher and brought him back to the Rest-Easy.

I was leaving the dome when the kids came back in. Anne looked at me for a moment; she was holding the bracelet.

"He was the nicest one," she said. She blinked twice, looked at the bracelet, at the feet under the blanket in the Rest-Easy. Then she walked on past, up the hill, through the grass and the daisies. I thought she'd look back and wave, but she didn't. I blinked once and then she was gone. ★



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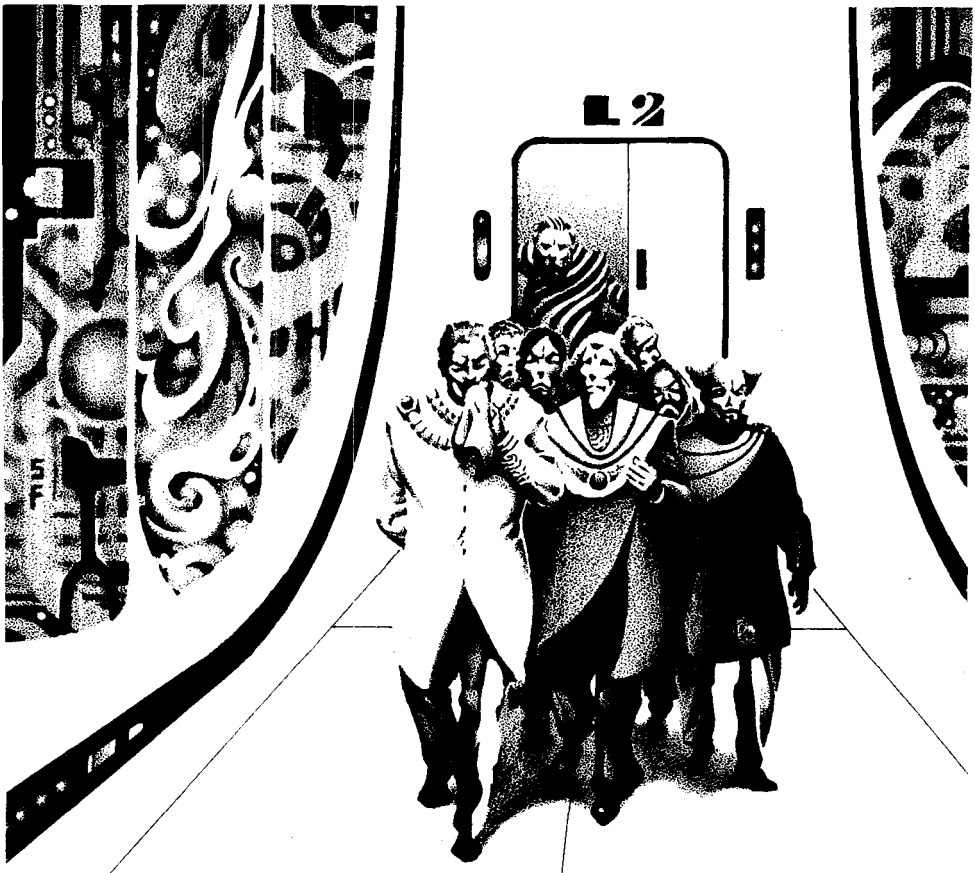

Dinsdale Dissents

Charles Sheffield

Convicted to a life of hard labor on the High Frontier, he found that the lot of a vatman is not a happy one!

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YES, WHAT WALDO TOLD YOU is quite true. He did get an award for his efforts on the Venus terraforming project, and his medal is genuine. Been boasting again, has he? I'll bet he didn't mention that the President of the United Space Federation opposed the award. Or that it was touch and go whether he got a reward or a life sentence.

No, the President's view had nothing to do with politics. It was a good deal more personal than that.

Let's start at the trial—that's where I got involved. Waldo and I have been friends and partners since law school. I couldn't believe my ears when I heard he'd been arrested for drug smuggling. Taliza's the worst drug on the list, the pusher's dream. Total addiction after one snort. And Waldo disapproves even of tobacco. It was so out of character that I was sure he must be innocent.

The drug ring had been extracting pure taliza from the plants, then putting it into metal powder compacts and shipping them all over Earth. Waldo had handled all the shipping and customs details. He made no attempt to deny it. He said he'd been approached, out of the blue, by a group who wanted to use his experience in international work. That seemed reasonable, because he'd worked for years in the international market. But there were snags.

"You say you believed," said the prosecuting counsel, "that somebody would pay you ten thousand credits a month, just to make shipping arrangements for a lot of cheap brass compacts? Isn't that much higher than your usual rates, Mr. Burmeister?"

Waldo hummed and hawed. He didn't have a good answer. If you ask me, he had suspected from the start that something shady was going on. I think he may even have guessed at smuggling—but gold, not drugs. As I say, Waldo has certain standards of honor.

I became increasingly uneasy as the prosecutor kept coming back to Waldo's 'refusal' to name the original source of the drug, or the other members of the ring. Waldo swore that he'd received no information except for the shipping details and knew nothing of any other people involved. It was a stand-off, but I could sense the jury tilting the wrong way. Innocence through ignorance is never a strong defense, and they could tell that it was contrary to Waldo's natural ego. The judge's summing-up, in which Waldo was painted as the leader of a desperate band of heartless villains, didn't help a bit.

The jury was out less than ten minutes. Guilty. Waldo, protesting his innocence, was sentenced to serve three years on Venus Station. I promised to write.

* * *

It's amazing how many people

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think, as I did, that the Venus terra-forming project is on Venus; actually that won't come for another three hundred years. All the work is done in orbit at Venus Station, seven hundred kilometers above the planet. The Station looks like two big wheels, four hundred meters across, on a common axle. I'd seen pictures of it, but that was all I knew until Waldo described it. The upper wheel, Station Up, spins—you get about one gee at the outer rim. It has all the hydroponics, air equipment and recycling equipment—and all the convicts. The lower wheel doesn't rotate. It's Station Down, and it acts as the docking facility and houses the algal seeders.

Waldo arrived at Station Down after a boring two-month flight from Earth, along with twenty other prisoners. I gather he was not impressed by his companions. They ranged from a mad bomber who had blown up the store that sold him a defective umbrella, to an illiterate janitor who had done in his wife when she refused to read stories to him. What annoyed Waldo was the way the rest of them looked down on him, as an unspeakable drug-master, destroyer of the young, perverter of the innocent. That, plus the fact that the bunks on the ship were designed for someone half his girth, made his life miserable. It shows how strange the world can be. A few months earlier, Waldo would have taken bets that he could never be glad to arrive at Venus Station to serve a prison sentence. But he saw Station Down swim into view with a great sense of relief.

After they docked he was taken to the Prison Admissions Office on Station Up. The work assignment supervisor there had a summary of Waldo's background, with the test results. He looked at them and shook his head.

"The only position I've got for you right now is as a Number Three Vatman, on the lower hydroponics level. One good thing about that, you'll have a gravity close to what you were used to on Earth. And it's a very important job; we all depend on the hydroponics."

Waldo frowned. It sounded as though it might be manual labor. He'd hoped for an administrative position—perhaps even a legal post.

"This vatman job. It doesn't sound as though it will make use of my skills. I'm sure I have the qualifications to fill a management slot for you here. Don't you have at least a clerical assignment available?"

"Not for your background." The supervisor looked sadly at Waldo's papers. "You have to understand, Mr. Burmeister, there's no shortage of lawyers in the prison. We have enough of you to fill all our clerical needs three times over. If you'd been a trained plumber now, or an electrician, that would be a different matter. You should find this job rewarding," he added, seeing Wal-

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do's expression. "Recycling is a very important function. You'll have full control of all the stirring, filtering and additive operations on the Number Three vat line."

It was manual work all right. Waldo didn't like the sound of it at all.

"But what's in the vats?" he asked. "Just what is it you are recycling?"

The supervisor told him. Waldo liked the sound of it even less. He made one more try. "Look, there must be some other jobs open here. Surely all the prisoners don't have useful trades. There must be jobs here on the Station that don't correspond to anything back on Earth."

"Oh yes, there are. There's one vacancy right now for a scout ship operator. A very responsible position. They fly down into the atmosphere of Venus everyday, and monitor the level that the algae reach before they become too hot to function. Unfortunately, that job has a weight limit." He looked at Waldo's bulk with misgiving. "You don't look less than ninety kilos, I'm afraid, so I didn't mention it to you."

Thank heaven for fat. Waldo mentally hugged his poundage to him. The last job he wanted was to be plunged into Venus' searing atmosphere as a sort of human dip stick. He should have kept his mouth shut.

"I'll keep your interest in the scout work in mind," the supervisor said encouragingly. "And don't worry about the vat work. I'm told that the smell is just a temporary problem. There's been something wrong with the chemical balance on the lowest level of tanks. Don't forget, in a year or so you'll be eligible for reassignment. I'll mark your interest in scouting down on your form here but I'm sure you'll soon settle in and make friends on the hydroponics work."

* * *

Curiously enough, the supervisor's optimistic prediction seemed to be right. The chief of the hydroponics area was a big bruiser named Katuki, who for some reason seemed delighted to see Waldo. He shook hands with enthusiasm and slapped him on the back.

"Hey, I'm really pleased to meet you, Mr. Burmeister. I've heard about you, but I didn't know you were going to be working down here. I thought it was impossible to rig the computers that assign people to different jobs. Sometime I'd like you to tell me how you worked it."

Waldo smiled modestly.

"It's good to get a bit of class in the place," Katuki went on. "The other fellers are good guys, but I don't mind telling you some of them aren't the brightest. Stop by my area as soon as you're settled in, and I'll introduce you to the other vatmen."

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Waldo was gratified. It was nice to be appreciated, even if the speaker's appearance was a little off-putting. At some time in the past Katuki's face seemed to have lost a major argument with something hard and irregular.

Waldo felt even more pleased later, when Katuki introduced him to the other four vatmen with a big build-up. No one had praised his brains so much for years. It's all relative, I suppose. A couple of others, according to Waldo, would have been hard pressed to decide which end of a stirring paddle to hold without guidance from Katuki.

Glasses and a bottle were produced from a locker and Katuki poured generous shots of a dark brown liquid. "Here's to our new buddy, Waldo Burmeister," he said, handing them around. "I know he's going to be a real help to the operation here."

Waldo hesitated, glass in hand, and looked at the door. "I'm sure you know best, but isn't this a bit risky? What about the guards?"

"Down here? You couldn't get a guard to the hydroponics levels unless you bribed him." Katuki thought for a moment. "I don't think I've seen one on this level for three months. Provided everything runs smoothly here, we're left to ourselves. Here's to you."

Waldo lifted his glass, expecting the worst, and gulped it down. He'd thought it would be near-beer, or rot-gut. It turned out to be high-proof, top quality bourbon. The others grinned at his obvious surprise.

"Not bad, eh, Waldo?" said Katuki. "I tell you, we do all right for ourselves down here. Know how we do it?"

Waldo accepted a second glass and thought for a moment. Obviously, they'd found a way to make or smuggle good booze. He didn't want to get involved in what might be a risky operation. On the other hand, he certainly didn't want to be cut off from the supply. This needed a careful answer.

"Mr. Katuki, when a lawyer is asked if he was given a piece of information he's legally obliged to answer, yes or no. But he can't be asked what he or somebody else was thinking. So to answer your question, I'd rather not be told where the drink comes from."

There was a baffled silence for a few seconds as the gears ground inside Katuki's bullet head. Then his face lit up. "Hey, I like that." He turned to the others. "See how to do it. No talk, no chance to get caught out." Then to Waldo. "You'll get the picture for yourself soon enough, when we look around the works tomorrow."

The next day wasn't so good. Despite Katuki's pride in the set-up, the three hydroponics levels were a bit stark. They began with the algae breeding tanks on the third level, where the big vats were cultured for the seeders.

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"We pipe 'em to Station Down as soon as they're ready," explained Katuki. "Then the seeders spray the algae out into the upper atmosphere. They convert carbon dioxide to oxygen as they fall, and die when it gets too hot for them. Each time we go over the same spot on the ground, the algae get a bit lower before they're crisped. It's already a couple of degrees cooler down on the surface than it was when the project started."

Waldo suppressed a yawn. Technology bored him. They went down a staircase to the second level and then along a corridor that led to the second level hydroponics tanks. Katuki had got a little more jumpy, excited about something. He kept glancing at Waldo as though in anticipation.

"Don't ever touch that red lever on the wall unless I tell you," he warned as they came halfway along the corridor. "It opens up a section of the floor, so we can dump chemicals into the channel on the first level."

"What's in the channel?"

"Partly treated sewage, on its way through the lowest level hydroponics tanks. You wouldn't drown if you fell down there—it's only waist-deep. I don't think you'd enjoy it, though."

They walked on, Waldo treading very gingerly as they went over the trapdoor section of the corridor. Just before the staircase to the lowest level Katuki stopped and looked into a small room on the left. It was filled with long spirals of silver coils, winding halfway to the ceiling. It looked curiously familiar. As they came down the staircase and out to the lowest level hydroponics, Waldo had a sudden insight.

A still. That's what those metal coils had to be, and that's where the liquor was coming from. As they walked past the fronded, blue-green plants of the long hydroponics tank he noticed that Katuki was looking at him with a sly, expectant air. Waldo winked and Katuki grinned back at him.

"We don't need to talk about it, right, Waldo?" he said. "A wink's as good as a nod to a blind horse."

They moved out along the first level catwalk, with the big hydroponics tank on their left. A broad stream of grey-green sewage, with beaded bubbles winking at the brim, moved sluggishly past on the right. Katuki noticed Waldo's expression and grinned again.

"That's where you finish up if you fall through the second level trapdoor. Don't make any enemies among the other vatmen, Waldo."

Waldo looked again at the steaming mess and shuddered. His appetite for dinner dropped a notch.

After a month he had the working routine mastered, but his taste for the job didn't increase. As far as Waldo was concerned, a vatman's lot was not a happy one. Apart from Katuki, the vatmen were near-morons and a grunt passed for

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sparkling conversation. What with filtering, stirring, removing sludge and adding chemicals, Waldo had lost ten kilos and was beginning to regard a human being as no more than an instrument for recycling sewage. That was a pity, because the vatmen under Katuki's direction dined—and wined—amazingly well. The third level of tanks were dedicated to producing algae for the seeders, and the lowest level next to the bottom sewage channel was used for oxygen production. But part of the tank on the second level had been set up as a kitchen garden and produced excellent vegetables.

There was not much real meat. Waldo could see no way round that, except maybe cannibalism. As he got to know Katuki better that seemed less improbable. Behind the tough battered face lay an even tougher inside. The crews did just what he told them, with no arguments and no discussion. Waldo followed the same approach himself. His work was mainly on the lowest level tank, where Katuki seemed to think he was exceptionally reliable. It wasn't easy. Katuki had been so impressed by Waldo's remark on the virtues of silent accord that his instructions had become almost unintelligible, delivered through isolated words and a series of nods, grunts and winks. But since he clearly continued to regard Waldo with special esteem, everything must have been going well. And as Katuki had said, the guards much preferred the upper levels of Station Up, where the gravity and the sewage were less noticeable. Waldo hadn't seen one down on the lowest levels since his arrival, and his fears regarding the condensing coils of the still off the second level corridor had greatly eased.

You have to remember that I'm reporting Waldo's version of events, plus a few things that came out after the visit of the Space Federation VIP's to Venus Station. So it's very possible that Waldo was not quite the popular, respected figure that he describes. Be that as it may, one day Katuki came rushing down to Waldo's room for advice and assistance. He was so worried that his speech had become quite normal.

"Waldo, we got a bad problem coming up," he said. "Next week's the tenth anniversary of the terraforming project. President Dinsdale and a whole bunch of VIP's are coming here for a big ceremony in Station Down—special algal spraying, banquet, everything. Trouble is, they'll be coming to Station Up as well, to give us a big inspection."

It was nice to receive Katuki's comments in words rather than in mime. Waldo could see no reason for the big panic, though.

"Don't worry about it, Katuki. He's not called Dandy Dinsdale for nothing, you know. I've seen him before. He wears thousand-credit suits and he changes his clothes five times a day. He has his own barber

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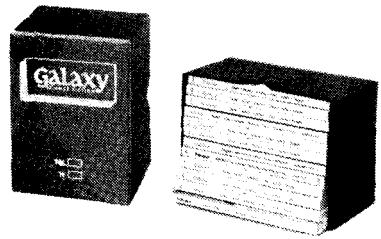
and his own manicurist. He can't stand dirt or filth in any form—it's a mania with him. I'm telling you, you'll never get Dinsdale within six levels of the vat areas."

"Waldo, he don't know what it's like here. He asked to see everything, and that dumb superintendent took him at his word. Rusty up in the guard block showed me the tour plan and it includes all our levels." Katuki paced up and down Waldo's room, two steps each way, then hammered his fist on the steel bulkhead. "Damn it, Waldo, what use is a prison if you can't keep the wrong people out of it?"

While Katuki was talking, Waldo's stomach had moved steadily up his throat and was now pushing at the roof of his mouth. That damned still! It would be the ruin of all of them. Why had he been fool enough to let a few bottles of liquor get him mixed up in another illegal deal? Why hadn't he stayed out or blown the whistle?

Because he'd heard Katuki's views on the way you deal with squealers and double-crossers, that's why. Waldo had the feeling that he'd been predestined for this setup, ever since the judge had said the words Venus Station. Katuki was still airing his woes. "They want me to go over to Station Down and explain the way we feed the algal seeders. That means I can't be here to steer the tour the way I'd like to. I'll rush back over here as soon as I can, but I can't

THIS SPACE RESERVED FOR GALAXY



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rely on one of those other dummies to show Dinsdale and the other brass round here. Christ, can you imagine Blattwitz or Grapelli leading the tour? It's taken me two years to teach those two to wash up before they come through for dinner. Waldo, it has to be you. You'll have to make sure the visitors only see what we want them to see. You'll do it, right?"

Waldo began to appreciate the narrowness of the beach between the devil and the deep blue sea. He was stuck with it.

"Right." He thought of the old advice to the woman being raped: relax.

"Then I'll make sure we have tour signs put up, to make it as easy for you as we can," Katuki went on. "People always follow arrows, even off a cliff. That's where I'd like to send that pansy Dinsdale. Damned troublemaker, why wouldn't he settle for a banquet like anybody else?"

Katuki had real venom in his tone. Waldo realized that Katuki's dislike of President Dinsdale went well beyond a difference of political opinions.

* * *

They spent most of the next few days scrubbing everything in sight, preparing for the big tour. When President Dinsdale finally appeared on the third hydroponics level, however, surrounded by a retinue of VIP's, it was clear that the cleaning efforts hadn't been sufficient. Waldo's predictions had been on the mark. Dinsdale, impeccably dressed and coiffured, was holding a fine silk handkerchief close to his nose, and his expression left no doubt as to his feelings. The superintendent handed the tour over to Waldo with obvious relief. Dinsdale's great disdain had penetrated even the superintendent's bovine brain. As they walked along the third level, Waldo babbled anything that happened to come into his head. He was preparing himself for the detour that would have to be made down on the second level, to by-pass the still.

Fortunately, President Dinsdale showed no interest in anything at all beyond his handkerchief. A couple of the others, though, were looking about them keenly and seemed to understand what they were seeing. Waldo led them nervously to the second level staircase, following the arrows that Katuki had set out.

As they came out into the second level corridor Waldo stopped, unable to believe his eyes. Instead of diverting them down to the lowest level, the arrows were pointing along the corridor, straight past the still.

The group was passing Waldo, blindly following the arrows, before he could get his brain working. They had reached the trapdoor and in two more seconds would be able to see the still.

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At that precise moment, Waldo had a sudden flash of total insight, an apocalyptic vision of truth. Katuki, in his hatred of President Dinsdale, didn't care whether they saw the still or not. He was planning to kidnap Dinsdale and hold the party hostages. Why else would he let the secret of the still be revealed?

In moments of great stress, the body moves faster than the brain. While Waldo was still dithering mentally, his legs moved him over to the corridor wall. His hands, unprompted, pulled the red lever. The trapdoor swung open, and President Dinsdale and his entourage disappeared with a chorus of screams.

Waldo advanced to the edge of the pit, unsure what to do next. His sudden vision of absolute truth hadn't given him a follow-up act. He dithered on the brink, noting absently that all of the party with the exception of Dinsdale himself had managed to land feet-first in the sewage channel below. The President had eventually regained his footing, but he had suffered a sea-change into something undeniably strange and overpoweringly rich. He had lost his handkerchief along the way.

As Waldo hesitated, Katuki suddenly appeared at the second-level staircase on the other side of the trapdoor. He was carrying a heavy wrench in his hand. "Dirty double-crosser," he shouted, and ran towards Waldo. Waldo turned to flee, but another vatman was coming the other way, a heavy iron pipe in his hand and a murderous expression on his face. Waldo's problem of what to do next seemed to be solved.

With a moan of anticipation, he flung himself backwards through the trapdoor and immersed himself in his work.

In due course, the lowest level's ever-rolling silent stream bore Waldo, President Dinsdale and the rest of them along into the lowest hydroponics area, where they were able to climb out onto the catwalk beside the big tank full of blue-green vegetation. Waldo was the last to arrive, and had expected a certain amount of commotion to greet him. But the reality exceeded his wildest imaginings. He had never heard anything like it.

* * *

Waldo didn't mention that he had saved President Dinsdale from being captured and held hostage? That's not too surprising. You see, it just wasn't true. The trouble with apocalyptic visions is that they often won't withstand a rational examination. Waldo's wild surmise about Katuki's intentions seemed to make sense to him at the time. Why else would Katuki let the still be seen?

The trouble was, it wasn't a still at all. If Waldo had known as much science as the average ten-year-old, he'd have realized that those coils

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were just part of the standard water recycling equipment on the Station. The thing that Katuki didn't want the visitors to see, and the thing that he was sure Waldo wouldn't let them see, was the lowest level hydroponics tank.

Katuki had misinterpreted Waldo's wink when they had taken their first tour. As Waldo said, just because you've seen a piece of cheese doesn't mean you'd recognize a cow if you saw one. The thing that so excited the visitors who had been plunged through the trapdoor—with the exception of Dinsdale, who had his own preoccupations—was the lowest level hydroponics tank.

The healthy vegetation there, producing oxygen for the use in the Station, was also producing—under Katuki's guiding hand—four acres of top-quality taliza plants, for shipment to Earth in return for liquor and other luxuries. Waldo's own knowledge of botany, as a deep hypnoprobe verified, stops at mixed vegetables.

Waldo was given an award by the grateful Space Federation for breaking the taliza ring. And Katuki's repeated attempts to get to Waldo during the trial and kill him with his bare hands proved pretty conclusively that Waldo had never had any part of the drug ring. But evidence or no evidence, Waldo never during the course of the whole trial received anything but a negative vote from President Dinsdale. ★

GALAXY

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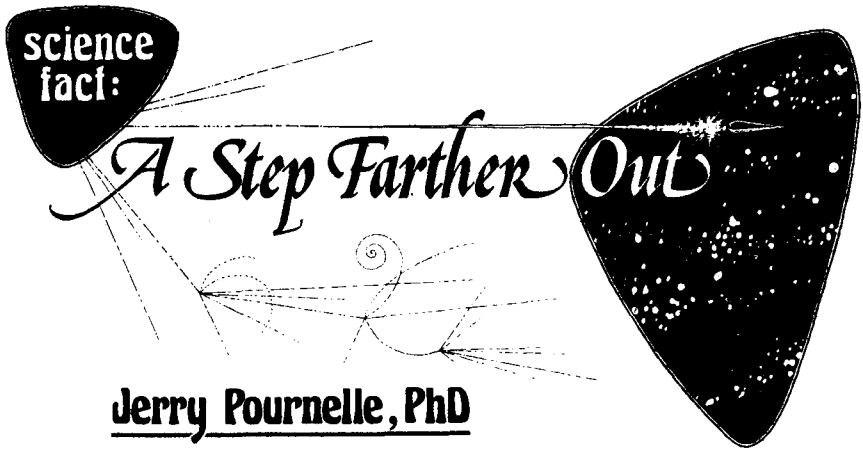

CAN TRASH SAVE US?

LARRY NIVEN used to live behind a garbage dump. You wouldn't have known it, of course; although his sister used to say he lived in the "wrong part" of BelAire, it is not characteristic of that fabled community that it be in any way noticeable that the municipal sanitary land fill—read garbage dump—is only about half a mile up the street. On the other hand, the access road to the dump is clearly visible from the San Diego Freeway, and when I drove to Larry's house—which was pretty often back in the days when we were writing *The Mote in God's Eye* and *Inferno*—I couldn't help seeing the endless stream of huge trucks trundling up into the Santa Monica Mountains with their loads of refuse.

Surely, thought I, we ought to be able to do *something* with that stuff besides bury it in what might otherwise be a very nice wilderness area. Couple that memory (Larry lives elsewhere now, so I don't go past there so often) with Jim Baen's persuasive manner ("Why the hell don't you write a column on how to rearrange the world so we don't waste so much? Get at it, blast you!") and you have the reason for this column. Frankly, as I start I don't have the foggiest notion of what I'll conclude.

Those who would save the world seem to do so in waves. There are fads in the eco-crusading business, and just now garbage is the big one. I say fad because the 1974 opus put out by the people who brought you the *Whole Earth Catalogue*, namely their *An Index of Possibilities: Energy and Power*, contains not a single index reference to "trash," "garbage," "waste," or "sewage," and only one tiny reference

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(under "methane") to use of any of these materials; yet it was supposed to be a compendium of all the ideas on how the energy crisis might be solved. Now, however, you can't pick up a work of that sort without finding article after article on how we could be saved if only we'd *use* the energy in our sewage and garbage. Unfortunately, none of the articles I've seen give any *numbers*; they're very similar to the wistful thoughts I had while driving to Larry's house. There's so much waste and trash that surely we can get a lot of energy out of it; can't we?

I don't know. Let's see.

* * *

Let's begin by looking at the present energy situation. That turns out not to be as easy as you might think; the data aren't collected together into one place, and even when you find the figures they're all mixed up. It takes a lot of patience and determination to come up with a meaningful composite.

Energy analysts don't seem ever to have heard of the metric system. Everything is given in terms of British Thermal Units, or tons of coal equivalent (and not everybody has a common figure on how many Btu there are in a ton of coal) or barrels of oil per day (ditto about Btu/bbl.) or kiloWatt-hours, or whatever they're enamored of.

I've put together as good a picture as I can, and I've converted everything into ergs (I grew up with the cgs system; if you like the mks system, divide by 10^7; if you like feet and pounds, get hep). The results are given in Tables One and Two, which show where the US energy comes from and where it goes.

Now true: the growth projected in Table One makes a number of assumptions which I haven't bothered to list (it assumes a constant real increase in GNP, for example) and the percentages in Table Two are going to change if the US population continues stable; but at least we've got something to work with, a way to see just how big a problem we're facing.

Now that we know how much power we need, let's find out how much garbage we have to deal with. Actually I shouldn't use the term "garbage" with its strong negative connotation; as the authors of the energy from waste section of *Annual Review of Energy* for 1976 point out, it's precisely that term that makes the most talented administrators avoid the municipal departments of sanitation, and makes waste-collection a job at the very lowest end of the social scale. Instead I suppose I should say "urban physical resources" or some such. Anyway, we need to know how much of it we have to work with.

The Environmental Protection Agency (EPA), which hasn't heard of the metric system either, guesses that we produce about 3.32 pounds per capita each day (1.51 kg for the more up to date among us). Looking at my own household that seems about right. The figure refers to *municipal wastes*, which is everything thrown away such as trash and garbage, but does not include sewage. Since there are about 250 million of us, we get a rough figure of 415 thousand *tons* each day, or 15

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TABLE ONE: ENERGY IN THE UNITED STATES
Supply and Demand in Ergs (x 10^{26})

DEMAND	1974	1977	1990
	7.9	8.7	13.3
Domestic	7.7	8.4	12.5
Household and commercial	1.5	1.6	1.99
Industrial	2.2	2.3	2.49
Transportation	1.9	2.1	2.83
Electrical Generation	2.1	2.4	5.20
Exports	0.2	0.3	0.38
Synthetic conversion losses	---	---	0.37
SUPPLY	7.9	8.7	13.3
Domestic (81%)	6.4	6.5	11.5
Coal	1.6	1.8	3.38
Petroleum	2.2	2.0	2.89
Gas	2.2	2.1	1.74
Nuclear	0.1	0.3	2.51
Hydro-electric	0.3	0.3	0.45
Shale	---	---	0.44
Other	---	---	0.07
Imports (19%)	1.5	2.1	1.76
Petroleum	1.4	2.0	1.47
Gas	0.1	0.1	0.30

(Calculated from tables in *Annual Review of Energy* for 1976)

million tons each year, which probably explains why the cities are running out of sanitary land fill. In metric terms we have 38 thousand metric tons or 13.7 million tonnes annually—still a respectable sum. We'll stay with the English system for a while because the energy figures I have for what we can get out of municipal waste are, of course, given in Btu/ton. Sigh.

Incidentally, the *Annual Review* article also gives an estimate of 250 million tons municipal waste daily, of which 175 million is domestic; and that simply can't be right. It may include sewage, which we'll deal with separately. But better than a ton per person per day is still far too large.

All right: we have this incredible pile of waste, now what can we do with it? Well, if it were dry we could burn it, with due regard to cleaning up the stack gasses to avoid pollution; and in fact that's what's done with a lot of it (and sometimes without worrying about the pollution aspects, either). Few places make any effort to capture

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TABLE TWO: ENERGY IN THE UNITED STATES
WHAT DO WE USE IT FOR?

Use (1974)	Percent	Ergs (x 10^{25})
Space heating	18	14.3
Water heating	4	3.2
Cooking	1.3	1.0
Air conditioning	2.5	2.0
Refrigeration	2	1.6
Industrial	(37.2)	(29.5)
Process Steam	17	13.5
Direct Heat	11	8.7
Electric Drive	8	6.3
Electrolytic processes	1.2	1.0
Transportation	(25.2)	(20.0)
Auto	13	10.3
Truck	5	4.0
Bus	0.2	0.2
Train	1	0.8
Airplane	2	1.6
Military and Other	4	3.2
Feedstock	5	4.0
Other	5	4.0
TOTAL	100.	79.3

(Calculated from tables in *Annual Review of Energy* for 1976)

the energy from that burning waste. The stuff is merely incinerated to reduce the volume. Surely there is a significant amount of energy released, though, and if we can tap it, will we be independent of Arab sheiks and Liberian tankers?

The standard figure for the energy content of municipal waste is about 10 million Btu per ton, but there's a joker: that's per ton of *dry* weight. Unfortunately, a lot of municipal waste is anything but dry, and it takes a good bit of energy to get the water out of it before it will burn at all. Still, let's assume we've dried it, somehow, and it's all ours.

We cannot yet burn it in steam boilers. The stuff consists of all kinds of things: discarded metal beds; tin cans; old Six Million Dollar Man toys; food scraps; dead animals; discarded vacuum cleaners; coffee grounds; and you name it. It must be pulverized and sorted, and that takes energy. It also takes either a very high or a very low technology: that is, one way to sort it is by human labor, but we'd probably have to increase the size

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of the army before we could put the unemployed to work doing *that*; thus we have to build highly sophisticated equipment, with magnets, grates, air-stream sorters and the like, and those cost money, and municipalities raise money primarily through property taxes, and homeowners are about ready to revolt already. But let's assume all those problems solved and we've done the sorting. How much energy can we get from our rubbish?

Comes now the math: tons times energy/ton times a mess of constants I won't bother to give. The results are interesting: 1.6×10^{25} ergs, or 4.4×10^{11} kiloWatt-hours. In other words, if we captured *all* the energy from our rubbish we could produce about 2% of the energy we used in 1974. Significant, yes. Important, perhaps. But it won't save us from Arab oil and sinking tankers.

Alas, things are worse than that. No industrial process is 100% efficient, and electrical generation is no exception. With present technology the best we've been able to do at burning rubbish is 27% efficiency, which means that if all our municipal waste were burned in the best boilers we know how to build, we'd get 1.2×10^{11} kW-hrs, or, coincidentally, some 2% of the electricity generated in 1974—and we have not counted in costs, the energy needed to process and dry, or indeed much of anything.

We could go another way. If we can persuade industries to build alongside the rubbish-disposal system or take the rubbish to their plants, so that we can use the steam directly without turning it into electricity, we get 66% of the energy value and that's a respectable 7% of all the process steam used in 1974; well worth trying for, if it doesn't cost too much.

So. What are the costs of all this? The *Annual Review* gives some figures, which I have recalculated to give Table Three. (I recalculated because theirs were based on plants processing 275 tons unsorted refuse per day, an awkward figure at best.) They still don't mean very much; is this a low or a high cost? Well, one figure readily available is the capital cost per installed kiloWatt of electrical power. That ranges from around $500 for a coal-fired plant to over $1000 for some kinds of nuclear.

Assuming 27% efficiency for a refuse-burning electrical plant, we find the capital cost per kW is $1103: much higher than other kinds of plant costs, which explains why electrical utilities aren't terribly interested. For $1100 a kW they can buy a nuclear *breeder* plant, whose operating costs will be lower than the value of the fuel produced. I suspect that my figures for nuclear power costs are a bit low; they're based on research done a couple of years ago, and the court and environmental impact statement costs of nuclear power are now about as high as the costs of the hardware; but even so, the refuse-plant generator is *expensive*.

Or is it? After all, the cities have to get rid of the refuse *somehow*. If we subtract off the costs of sanitary land fill, and a number of the other expenses of disposing of that growing mound of trash that gives mayors nightmares, our electrical

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TABLE THREE

THE COSTS OF GETTING POWER FROM WASTE

System Used	Capital Cost	Annual Operating Cost
Pyrolysis	$30,900	6,152
Steam generation, processed refuse	26,900	5,047
Steam generation, unprocessed refuse	25,000	4,665
Electrical generation, processed refuse	36,363	6,458
Fuel preparation	10,909	3,363

All figures in constant 1978 dollars per ton (2000 lbs) of unsorted refuse per day. Source: *Annual Review of Energy,* Vol. 1, 1976, Annual Reviews, Inc., Palo Alto.

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plants begin to make sense after all: but only if we look at cities as a total system, and city budgets aren't prepared that way. Believe me, I know: I've been Executive Assistant to the Mayor of Los Angeles. The Department of Water and Power would scream bloody blue blazes if told they had to spend that kind of money; while many of DWP's senior administrators, people you can't do without, would go job-hunting if told their lordly department was to be combined with Sanitation. Moreover, the City Council would impeach anyone suggesting the kind of capital fund raising (and consequent increase in property taxes) a large-scale electricity-from-rubbish project would require.

Still, if we were starting over—if we could look at cities as total systems rather than as a series of independent departments—it would make a great deal of sense to get rid of our refuse and extract the energy out of it at the same time. We could *not* run the city on its own garbage, nor is garbage a particularly efficient way to get electricity; but since you have to get rid of the stuff *anyway*, you might as well take out what you can, and the total system costs will probably justify the initial capital expense.

Whether, given what we've already spent on sanitation facilities, it makes much sense is not so obvious: you have to look at each city independently. I suspect that LA could sell the land set aside for sanitary land fill (another department heard from: although Recreation and Parks knows it can't keep

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that land forever, right now they're not turning loose) for enough to build some good-sized plants; but I haven't done the numbers. In places where land values are not so high as here, it's more dubious.

Let's leave rubbish for a bit and get down in the sewers. If garbage can't provide more than a fraction of our energy needs, can *sewage* save us?

* * *

To begin with, sewage is valuable. That should be obvious: it is only the very wealthy western nations that can afford to throw away such a valuable resource. Indeed, we spend a lot of money and energy merely to throw it away—after which we burn a lot of valuable coal and oil to generate electricity in order to fix nitrogen to make fertilizer—fertilizer that's not as good as the high-nitrogen sewage we pollute rivers with.

Secondly, there's a long technological history of using sewage as a fuel source: begin with the Indian peasant who uses buffalo chips to cook his food and procede to modern methane generators.

Finally, even if we don't use sewage as fertilizer—and thus bypass the long series of inefficiencies involved in the generation and transmission of power, fixation of nitrogen, etc., culminating in commercial fertilizer—the stuff has a high energy content.

In other words, using sewage as an energy source has a lot going for it. There are several ways to go.

First, as agricultural nutrient, allowing the crop to be the actual energy-storage system. This is widely done in the Orient, with detrimental side effects: the honey-bucket is a pretty effective means of spreading epidemics. Surely we can do better than that.

Second, as methane source: shovel sewage into a tank, let ferment in the absence of air, and out comes methane. Methane is also known as natural gas, and is rather valuable. Indeed, natural gas is the most critically short item in our energy budget. A pound of dry sewage solid will produce about 3 to 5 cubic feet of methane, which sells at $3.53 per 100 cubic meters. Now my source book, with a straight face, gives both those figures in the same paragraph. I'll translate: a ton of sewage produces some 225 cubic meters of methane, worth about $8.00. The methane production pretty well sterilizes the residual, which can then be used as high-nitrogen fertilizer. (But we will have to use some of the methane as fuel for drying it before we can sell it.)

Finally, we can produce the methane and then burn the residual. It has been calculated that doing that will let us build a system that operates at zero profit provided that we charge about $5.50 a ton dump fee: that is, those who wish to dispose of sewage must pay us.

Why is this? We're getting valuable fuel out of the system; surely we need not charge a dump fee? Ah, but the plant itself costs a lot of money, and that money isn't free. *IF* the plant already existed, it would make a profit—but the "profit" is lower than current interest rates, and thus the dump fee:

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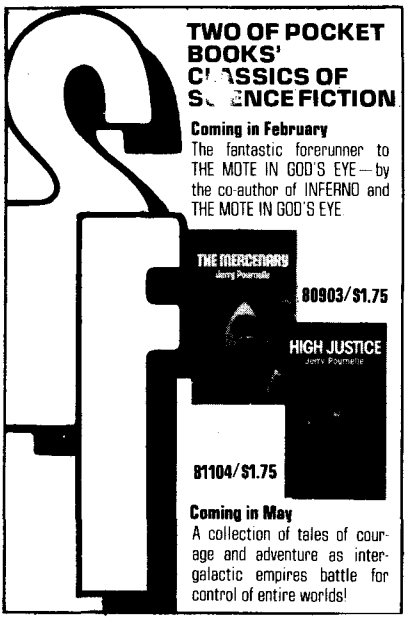
another of the little points usually forgotten by those who are faddishly out to save the world. Of course, if the price of methane were deregulated the system would be clearly profitable; exactly how profitable would depend on how much of the gas produced would have to be returned to the system as operating energy.

Furthermore, technology improves, and one commercial utility, Southern California Edison, was at one time trying to find ways to use sewage as fuel: they contracted to take the entire sewage output of one of the smaller southern California cities free and get rid of it by burning it in their boilers. They didn't quite know how to make that work, but they were doing the research, when along came the Public Utilities Commission to tell them to stop. It seems that wasn't a justifiable use of the rate-payers' money. Utilities shouldn't engage in fuel research, they should generate power. Thus we were all protected by our government, and now a government agency will have to do the necessary research if sewage is to be burned at a profit.

Still, just how much energy could we get from this source? Well, each of us produces about .25 pounds (yeah, I know, but all the other numbers I could find were in the English system and I give up) of *dry* solid each day. That's 11 million tons a year; if it all went into methane generation systems we'd get 90 billion cubic feet of methane annually, and at 994.7 Btu per cubic foot that's 9.6 x 10^{23} ergs or 0.19% (2 tenths of a percent) of the 1974 energy budget. Sigh. It's unlikely to save us, isn't it? However, don't despair. We can also add the animal wastes, which amount to some 25 million tons a year, and get up to 2000 billion cubic feet of methane, 2.1 x 10^{25} ergs, or 2.6% of all energy used in 1974. Better than that, it's just about 10% of the energy we obtained from natural gas in 1974—ie., we could cut natural gas consumption by 10% a year—and natural gas is, as mentioned, the most critically short item in our energy mix.

It's not the earth, but it's something.

Of course it's also expensive, and technologically some time away. What I've given are some maximum theoretical figures, not what we could do tomorrow morning if we set our minds to it.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* * *

Let's see: 2% from human and animal sewage; another 2% from municipal refuse; add in another percentage point just in case: and we've come up with a grand total of 5% of the 1974 energy budget, provided that we can use ALL of the energy from our sewage and garbage and other trash. Since we cannot possibly capture 100% of that energy, I leave it to you to guess at the actual efficiencies; and I think you now see why engineers, as opposed to faddists, don't think we can run the United States on its own garbage heaps.

That doesn't mean the energies in our waste aren't worth recovering. It's particularly true in the case of animal wastes: methane generators aren't very sensitive to scale. Once you get up to a couple of tons a day, larger methane cookers don't cost much less per pound processed. Thus quite small operations could feasibly build them; and, like garbage, both animal and human wastes *must* be disposed of anyway, and dairies ought to be encouraged (through higher sewage fees and the like) to catch that energy and feed it into the national pipeline. Once again, though, each case must be examined individually: distance to pipeline; availability of water (methane cookers take lots of water); and other such factors enter here.

But having done it, we haven't saved ourselves.

* * *

If we got 5% of the 1974 energy budget from sewage and garbage (which we can't, because 5% comes only with 100% efficiency), we'd still have to depend on Arab oil. What else can we do?

Not too long ago there was in vogue a scheme to grow crops for alcohol and run much of our transport system on that. It was even worked out quite elaborately: take sewage and transport it (means not specified) out to marginal farmlands; take the urban poor off the welfare rolls and give them smallholdings of that marginal land; and let them grow alcohol crops, thus relieving unemployment, getting people out of the cities, and solving the energy crisis—as well as dealing with sewage.

It sounds good. It sounds marvelous. Why don't we do it?

Well, alas, there are some problems. For one, many of those urban poor have just come to the city from marginal farms on which they couldn't make a living. It might require a larger police force and army than we have to make them go back. But leave that. Let's assume we have the labor force or can get it.

What crops produce the most alcohol? You already know that: corn (maize, as they call it everywhere but in the USA); wheat; barley; in other words, cash crops. If they grow well they'll be grown: gone are the days of our big farm surpluses. Also, they are all crops which respond best to agro-business techniques: there are *enormous* economies of scale. It doesn't cost anywhere near a thousand times as much to keep 40,000 acres in cultivation as it does to keep 40 going.

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Then there are the costs of collection. The alcohol must be transported and distributed: first, though, the crops themselves must be carried around to the fermenting vats (since the costs of providing each farm, or small community of farms, with its own generation facility would be collossal); then the resulting alcohol must be piped to where it will be used.

Also note that all of this is in competition with food crops. True: the United States probably could, at hideous capital costs, grow enough alcohol to run its transport system, and thus be free or nearly so of imported petroleum. We could even afford to do it. It would have one monstrous side effect, though: as we are now one of the few food-exporting countries of this world, we could condemn a lot of people to starvation. I suspect that the very ones who now clamor for our energy-independence achieved through croplands growing alcohol would be the first to denounce such callous behavior.

But: it is in precisely this area that research can be made to pay off. Right now growing plants are very inefficient things. They don't really convert much (1% or so) of the sunlight falling on them into useful energy. Over the millenia man has selectively bred some plants (such as maize, wheat, barley, etc.) to do a much better job than most; now molecular biology may allow us to double that efficiency in a few years.

Then, too, the system for generating methane produces a very high grade fertilizer, with not only nitrates but also phosphates, trace elements, and the other ingredients missing from marginal farmland. Thus we have a potential for upgrading marginal land, which will attract unhappy city dwellers to a rural life. Whether the upgraded land is best used to grow alcohol crops for fuel, or to grow food for the world, is an economic decision that would have to be made at the time; but clearly it will be useful.

The potential is enormous. If we had 3% efficient crops and grew them continuously, then some 2% of the US land area would provide fuel for all our electrical generators: 25% of all the energy we use, and this without fusion or plutonium or coal or oil. Well worth continuing research, and you may recall that a year or so ago I discussed the need for a national "Manhattan Project" in plant efficiencies. It's still needed. The development of more efficient agricultural plants would do more towards solving the energy problem than all the solar towers and windmills we'll ever build.

* * *

Finally, what does it all mean? I'm tempted to give Mr. Natural's answer, but I won't.

What it means is this: there aren't any simple answers to our energy problem. No magic solutions. No fads. No mysterious "them" who prevent us from solving all our problems with a few tricks.

What it takes is high technology and a lot of research: neither of which looks too healthy right now, given our tax laws. It takes capital accumulation, incentives, a chopping away of bureaucratic red tape.

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I've covered a lot of that in previous essays.

I don't want to leave this before making one point that glared at me out of the research I did for this article. Were I energy czar of the US, I know what I'd do (I think—after all, I've only taken a first cut).

Our transport system uses a full quarter of all energy, and 80% of our petroleum; it uses all of the imported oil. The efficiency of the US transport system is 8%, based on a figure of 0.16 kW-hr (6×10^{12} ergs) per ton-mile. Electrical vehicles can at least *double* that efficiency, even taking into account losses in transmission over wires, charging batteries, and all the rest. If we also include the costs of pollution control, the advantage of electric vehicles looms even greater.

At the moment there's no incentive to develop electric cars and trucks and the like: there's not enough electricity. If tomorrow morning all our cars were magically converted into electric vehicles, we'd be paralyzed.

We have non-polluting means of generating electricity: nuclear power plants. No. Modern fission plants are not the long-term solution to the world's energy problem, nor are they entirely safe (although compared to the health costs of coal they come off rather well). They produce plutonium which has a number of problems associated with it. But they'd get us past any current energy crisis, and if we had enough electricity we would develop—finish, really, because we've just about invented it—the technology to convert from internal combustion to electric transport; that in itself would save more energy than we could get from burning all our garbage and sewage—and it would move us a long way toward energy independence.

Meanwhile, for the long-term I'd finance a *lot* of research into more efficient energy-fixing crops; I'd put development money into ocean-thermal energy (described in several earlier columns, and useful because a good bit of the research goes into low-heat turbine systems which can be used as bottoming cycles on existing powerplants even if they never got to sea); I'd change the tax laws to give *lower* property taxes to those who insulate their houses and install solar heaters (rather than the ruinous fines called "increased property valuation" that the city now levies on you for insulating); and I'd put a bit more into fusion. Finally, I'd change the tax laws to let all kinds of private enterprises do research in the field of energy conservation and efficiencies, even if that meant lower tax revenue and thus laying off some bureaucrats.

But perhaps that's a dream world, no more realistic than the dream of those who'd run the US of A on its own garbage.

I've pointed out in previous articles that there are many ways to produce enough energy to operate our industrial economy. A combination of sewage processing and agriculture for ethanol can be yet another. I don't know which of these ways is preferable, but many are feasible. We can get enough energy; we don't have to collapse and die; all we really have to do is stop wringing our hands and get on with the job. ★

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THE EVENING MEAL was better than usual: the peas were not quite so much like buckshot, the meat a bit more tender with less of the stringy bits like insulation wire, the potatoes less full of sprouts and black spots, even the wine tasted less like vinegar.

The voice of Brother James droned on from the end of the table.

"If the nearness of our last necessity, brought a nearer conformity into it, there were a happiness in hoary hairs, and no calamity in half senses."

A difficult reading tonight, Brother John thought. What was it again? Urn Burial? Yes, that was it. Five hundred years old. No wonder the difficulty.

Brother John looked to his left down the length of the long table, now largely empty. Here and there a brother such as himself took the nightly repast and listened to the words of Brother James.

"But the most tedious being is that which can unwish itself, content to be nothing—"

We are ever fewer, Brother John thought again as he did now more and more often. He felt a sense of sadness, but not depression. What they were doing was good and needed doing. He looked past the mathematics table, the sciences table, the agricultural table, to the wall where the old motto hung: "Preserve Knowledge Through the Long Dark Electronic Night."

Yes, that was right. That was the duty.

Brother James read on. Others from the other disciplines were reading also at the long tables in the great hall of the Fulda.

"What time the persons of these Ossuaries entered the famous Nations of the dead, and slept with Princes and Counsellors, might admit a wide solution."

What were ossuaries again? thought Brother John. Ah, yes, places for bones, I remember now. It comes from the Latin os, for bone. That's right. But how are we to understand, "might admit a wide solution"? What might?

Brother John sighed as he finished the last of his custard. It had been made from real milk and was sour as usual. If only the brothers had more time for husbandry the food might be better. But they were so few, and there was so much to be done.

How difficult it was to keep knowledge alive. How difficult to be an Einhard, to keep, to hold, to preserve knowledge against that time when man would once again stand in need of it. But this reading was difficult, no doubt about it. He would have to study it in detail tomorrow. Still it was easier than last month's reading, the *Mort d'Arthur*.

Senior Brother Roger coughed softly and looked down the table at them. Brother James stopped reading and squeezed the book shut with a hissing, reverential, *shhh*.

Brother Roger cleared his throat. At each of the other tables senior brothers were doing likewise.

"Brothers," he said. The word reverberated from all the tables like an echo. Chairs scraped as the brothers stood and filed out to the commons for brandy and smokes.

"Brother John," the voice of the Senior Brother stopped him just as he reached the door.

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"Yes, Senior Brother?"

Brother Roger looked uncomfortable. "I realize this is an imposition . . ."

Brother John said nothing, merely waited.

"Well, you know—. Well, the truth is, Brother John, we have recruiting appointments in Capital tomorrow. We had enough credits from handcraft sales to buy one Tri-V ad, and—"

"Oh?"

"Yes,—and I rather thought. Well, Brother, not to put too fine a point on it, I think you are the one to represent the English Einhards."

Brother John sighed. He had done this before. It was unpleasant but someone had to go. How else would long tables ever be filled?

"Of course I'll go," he said.

"That's fine," the Senior Brother said. "I knew you would. The bus will be in front of Fulda at eight."

Brother John nodded. Before he could leave, Brother Roger's voice again stopped him.

"Brother John—"

"Yes?"

"Please wear your best tweed and leathers."

He nodded again and went off, bypassing the commons, walking straight to his cell.

Wear my best tweed and leathers, he thought. What best? Well, he would see if pressing up his other set a bit might make them more presentable. And a damp cloth for the easier spots.

He sighed again. Ah, to keep knowledge alive.

* * *

The interviews were given in a small set of rooms allotted them by the municipality. Brother John was shown his room by a rather insolent young employee who looked at Brother John with a condescending smirk, as if he were dealing with a moron or a primitive.

"Hee yah, pers," the young man muttered as he unlocked the door.

"Wan sum else, talk a me, pers," he muttered again and closed the door.

He would be some time before the first interview, so he looked curiously around this room that was so different from anything in Fulda.

In a sense it was The Enemy. It was the electronic night through which they were trying to preserve knowledge for that day—who knew when?—centuries, millennia, down the road when man would again realize his need for it—and for those who understood it.

He sat at the information console, studied the buttons and color coded tabs. He gave up trying to make sense of it and pushed buttons at random. The wall lit up and a man's face began giving directions on filling out "your decess income form." Brother John wondered at the word. . .of course; the opposite of excess. He shuddered. He pushed another combination of buttons and music sprang from the walls accompanied by flickering patterns of color. Another series of punches gave him only an engimatic voice saying, "The answer is three hundred ninety-nine." He had obviously asked the machine an arithmetic question but he had no idea what it was.

Finally he gave up and lay on the

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bed to think. It began to pulse and vibrate to the sound of soft music. He pushed distastefully at the buttons on the headboard but the bed merely went faster and the music became more frantic, louder and more loathsome.

Brother John surrendered again and tried to relax. The long bus ride into Capital from Fulda had tired him. And no wonder, riding in a hand-made bus over roads that were no longer used, maintained or needed. If recruiting were not so important no one would ever venture out. And then to have a flat tire on top of it. It had been humiliating, he had to admit, to stand amid the weeds and broken pavement of the old road, getting tweed and leathers filthy, while aircars and hoppers zoomed low or hovered, each full of malicious, laughing eyes. He squinched his eyes together to make it all go away and be good again.

Brother John realized he was having one of his periods of doubt: maybe he wasn't meant to be an Einhard. Perhaps they were all fooling themselves. He thought of the bus leaving the Fulda compound, past the animal compound, past the weaving shed where the tweeds were made, past the dairy, past the winery, past the fields with growing things . . . such as they were. Was it worth it, this obsession to keep the old skills alive when they weren't wanted or needed and might never be?

But of course it was. The first Einhard had seen that clearly. The catastrophe would come, in whatever form: war, environmental collapse, another ice age, madness—who knew? but it would come. Civilizations always fall. And when this one did the Fuldas of the world would start things up again.

The room-announcer told him he had a visitor. Wearily, he climbed from the quivering bed. His feet felt for the floor as if he were stepping onto a dock from a bobbing raft. He gazed distastefully at the room again: no, this was not for him. He pressed the button to let in the first candidate.

Two hours later he was finished. Three young men, only three. Still, it could have been worse; he might have had no applicants at all. He wondered how the other brothers had done.

He looked down at his notes, reviewing the three candidates.

* * *

The first had come in confidently, giving Brother John the ritual punch in the chest that was the vogue now. Brother John at first recoiled, then tried to hide his distaste. After all, it wasn't the lad's fault . . . but all the same—

"Please be seated."

"Howz?" the boy asked in obvious bewilderment.

Brother John gathered himself together.

"Siddan."

The lad smiled broadly and slumped into a chair. He punched a button on the arm and the room was full of music and dancing lights. Brother John winced.

"Please turn it off so we can talk," he said.

The boy stared back at him.

"Clear't," Brother John said,

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louder than he had intended.

Morosely the boy made the room quiet and dim again. He squirmed in his seat.

"Yur num Joey Bing?" Brother John asked.

"Ya copy."

"Tell me about yourself, your background."

"I dun copy."

Brother John sighed. It would be a long half hour.

"Wan yur life printout," he said.

"Ah," the boy said, "I MR it furya."

He tapped away at the minicomp on his wrist.

"Error," Brother John said, again much too loudly. The boy looked up in surprise.

Brother John tried to go on in an even and gentle voice.

"Doan comp it. Can't you MR it yaself?"

The boy was amazed.

"Wha? Got muh egoplak inna comp. Gotit all. Wha shudda?"

So it went. At the end Brother John asked the standard question.

"Why ya wanna be Einhard?"

The boy's forehead crinkled with the effort of thought. Finally he smiled. He had the answer.

"Fushuh I compa no funna home. Old man error. Old lady bad head circ, no—CE that. She overload more. Anywuh, no funnahome. Wann punch your circ."

Brother John sighed again. A loser from a losing family.

"Thank you. We'll call if we want you," he said, not caring if the boy understood.

The second candidate had sort of slid into the room. He seemed to do everything sideways, edging through life like a crab. He was a thin boy with a scraggly beard and hair to match. Pimples stuck up through his beard like hillocks through the underbrush. He smiled in a way Brother John could only think of as a leer.

Unpleasant as he looked, the lad was more articulate than the first. But the thought of sitting next to this boy at long table made him shudder.

"And why do you want to be an Einhard?" Brother John asked the final question.

"Well ah, yuh know," the lad said. "Yuh know."

"I'm afraid I don't," Brother John said.

Again the smile that was a leer, as if the boy were winking with his lips.

"Yuh know," he said again, "cause a what you do out there."

"And what do we do?"

"Yuh know, with the doll Einhards. Make 'em happy, yuh know. I can do that. I got recommends."

Brother John could not even be angry. It was all too silly, in a disgusting kind of way.

"There are no women Einhards," he said. "There are no women at all in Fulda."

The smile came back uncertainly, like writhing snakes.

"I copy," the boy said. "Whatevah ya say."

After he had gone Brother John sat several minutes bracing for the final interview. He'd had no need. It went well, even pleasantly.

The last lad came in, staring with myopic hesitation around the room,

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as if his contacts hadn't been properly fitted. He was overweight and pale, and his hair grew in clumps like wisps of limp straw that hung over his round little face. He had a doughy look about him, as if his flesh would retain an identation if you pressed it with your finger.

Not very prepossessing, Brother John thought, but then neither am I. Nor was I at his age either, he added in the interest of strict truth.

But wonder of wonders, the boy could actually *speak*. He could make sense of the spoken word. He could construct real sentences—not perfectly, but well enough to give hope.

Brother John crossed his fingers and asked the next question.

"Can you read?"

The boy smiled his lumpy little smile: "Yes."

"I mean real words, on paper. Real English words. Not comp talk; real words."

"Yes."

Brother John took a paper from his case and gingerly handed it to the boy.

"Read this."

The paper contained a series of sentences of graduated difficulty, from the very simple, "The boy threw the ball," to the very difficult, "Four score and seven years ago, our fathers—."

The boy made it halfway through before breaking down.

Not bad, Brother John thought, not bad at all. There was hope.

"And," Brother John asked the ultimate question, "why do you want to be an Einhard? Why do you want to wear the tweed and leathers?"

"I don't know if I can say," the lad replied. "It's more a feel, I guess."

He thought a minute while Brother John waited.

"All right," he said at last, "I comp," and then blushed.

"I'm sorry," he said. "I mean I think I understand."

"That's all right. Take your time."

"I read a poem once—"

"You read poetry?" Brother John said with astounded delight. The boy nodded.

"Yes. A little. I didn't understand more than half of this one. But I remember the first line and I guess it says how I feel."

"And it was—?"

"Life too much with us," the boy said. "that's it. Life too much with us."

Brother John thought quickly. He did not want to be embarrassed by not remembering it. Ah, yes, he had it now.

"Yes," he said, "that poem is from the nineteenth century. But it goes, 'Life is too much with us.' You forgot the 'is'."

"Is?" the boy said.

"Yes, you see you need a form of the verb 'to be' to make the sentence."

The boy stared at him, downcast.

"Don't worry about it," Brother John said, "you've done quite well."

He arranged for the boy to visit Fulda before deciding to take vows. He shook the doughy little hand one more time. The lad left and suddenly he was alone again.

Three candidates, one a possible novitiate; not bad at all for these

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degenerate days. Again he wondered how the math and science brothers had done. Suddenly Brother John smiled wickedly and put his notes away: time now to be naughty. He whistled as he tied the case shut.

The young clerk who had shown him to his room happened to be exiting as Brother John entered the lift. "See ya, Pers. Doan do a bad," the man said condescendingly as the door irised shut between them.

* * *

There was a self-serv on the ground floor. Brother John looked at the pictures of the various unreal foods. Below each was a slot where you put your credplak, and a little door below that where the food came out. He was tempted to go all the way, but then he recollected his oath of moderation—and his low cred balance. He selected a piece of pie. He put his credplak in the slot. Nothing happened. He tried again. Still nothing.

"You've got an expired plak," the man behind him said.

"Oh? I didn't know." Brother John said, dismayed.

"Yes, new ones were issued last month. Didn't you hear?"

"No, I'm afraid not. We don't get much news." Brother John put his worthless credplak away and turned to leave. His stomach, not knowing the details, rumbled a protest.

"I'll get it for you," the stranger said.

Brother John looked at him, considering. One couldn't be too careful in the city. The stories! Still, the man looked decent enough.

"I really couldn't," Brother John said, for form's sake.

"It's all right. It's only a piece of pie."

"Well, I thank you then."

The man put his credplak in the slot and the door opened. Brother John took the pie.

"Something to drink?" the man said.

"Well, if it wouldn't be an imposition, perhaps some coffee."

The man chuckled noiselessly.

"Wouldn't be an imposition," he repeated. "I love that. If you knew how that sounded."

"I'm sorry—"

The stranger brushed this off.

"No, no, I love it. I really do," he said.

They sat at a small table in the

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corner. Brother John put the first bite of pie in his mouth and almost cried it was so good. Then he sipped the cofee, held it in his mouth until all the little taste buds had gotten their little hooks into it.

"Ah," he said.

It was strange. He knew that not a single thing in either the pie or the coffee was natural, not one thing. It was all synthetic, made to duplicate the taste and consistency of the real thing. No, he thought, it was better than the real thing, at least as served at Fulda.

"You're an Einhard, aren't you?" the man asked.

"Yes," Brother John mumbled, his mouth full.

"Thought so," the man said.

"We aren't hard to recognize."

"No, you're not. Indeed you're not."

The stranger looked at Brother John steadily.

"No, indeed you're not," he went on. "Not many people are loose wearing hand-made coats with plastic elbow patches."

"They aren't plastic," Brother John said, somewhat irritated. "They're leather."

"You mean—?"

Brother John nodded.

"Yes, real animal skin. We raise animals."

"I'd heard that," the man conceded.

"And," Brother John went on, "the coat is not handmade. It is tweed made on our own power looms."

"Yes, I'd heard that too."

Brother John finished the pie and began nursing the coffee.

"The truth is," the stranger said, "I once toyed with the idea of becoming an Einhard."

"Oh?" Brother John said, interested. "Why didn't you?"

The man shrugged and thought for the right words.

"I don't know. I think I realized that it would be an escape, an evasion—running away."

"You think I am running away?" Brother John asked simply.

"Well, yes," he hesitated. "All right, yes I do. What else do you call it, dressing in old-fashioned clothes, calling yourselves by antiquated names and titles—even 'Einhard' and 'Fulda' have no relation to reality. Just because a man named Einhard, living in a place called Fulda, started the whole thing a hundred and fifty years ago—"

"That's not quite correct," Brother John said.

"That's what I've heard," the man said obstinately.

"Oh, it's true enough," Brother John went on, trying to be kind, "that our order was started by first Senior Brother Einhard in the first sanctuary called Fulda—"

"That's what I said," the man said.

"—but the names come from something much older. Einhard was really a scholar living in the monastery of Fulda in the ninth century."

"The ninth century?"

Brother John nodded.

"Yes, that first Einhard preserved the only copy of an old Latin work on the lives of the Roman emperors—" Brother John was losing the man's attention, he knew, "so it's symbolic, you see," he hurried on. "He preserved knowledge and so that's why our first

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Einhard took the name and called his sanctuary Fulda."

"And you think you are preserving knowledge?"

"Yes."

"Knowledge of what—and *for* what?"

The question was so brutally simple that Brother John winced in spite of himself.

"The basic knowledge of language, science, mathematics and all the other skills that man will need to start over."

The man nodded.

"So I've heard," he said. "But you must see how useless that is."

"We don't see it so," Brother John said stiffly.

The man shrugged again.

"Well, it's true. Look," he went on seriously, "man is not going to destroy his culture. He is not going to blow himself up. He is not going to starve. He couldn't even if he wanted to. Why, we can even handle a new ice age. Did you know there are actually plans to do that?"

"No, I didn't," Brother John said.

"What you are doing might have been valid a couple of hundred years ago, but it isn't now. We don't need it. We don't need you. All basic knowledge, *all of it,* is in the machines. The machines could recreate our culture by themselves—and they are virtually indestructable. Man doesn't need to work—he doesn't even need to think."

"But you obviously do think," Brother John parried.

The stranger was embarrassed. "That's why I learned to talk old-style: It's my hobby."

"Ah," Brother John said, "and that is perhaps why we build the Fuldas."

"As hobbies?"

Now Brother John shrugged.

"Perhaps not strictly that—and we are by no means convinced the machines might not fail—but to remind us that we are more than just creatures."

"What then?"

"Creators. Even if what we create is unnecessary."

The man sat back in the chair and stared at Brother John.

"You're escaping," he said loudly. "Why should you escape? Who gave you the right? Who gave you the right to avoid all this, this—" he groped for a word, "dreck, this life?"

Brother John recoiled from the force of the man. He thought of the doughy, lumpy boy and 'Life is too much with us,' and could only shrug again.

★ ★ ★

It was his turn to fast and do the reading at dinner that night. The fast was easier this night because the remnants of pie and coffee seemed to still be with him, as was the bitterness of that final conversation. The brothers were starting their potato soup when Brother John began to read.

"I read tonight," he said, "from the Manual of Style, as preserved by the Fulda at Newburgh, page ninety-two, third paragraph. 'A semicolon is used to mark a more important break in sentence flow . . .' "

The brothers continued with their meal. They washed it all down with wine that tasted slightly of vinegar. ★

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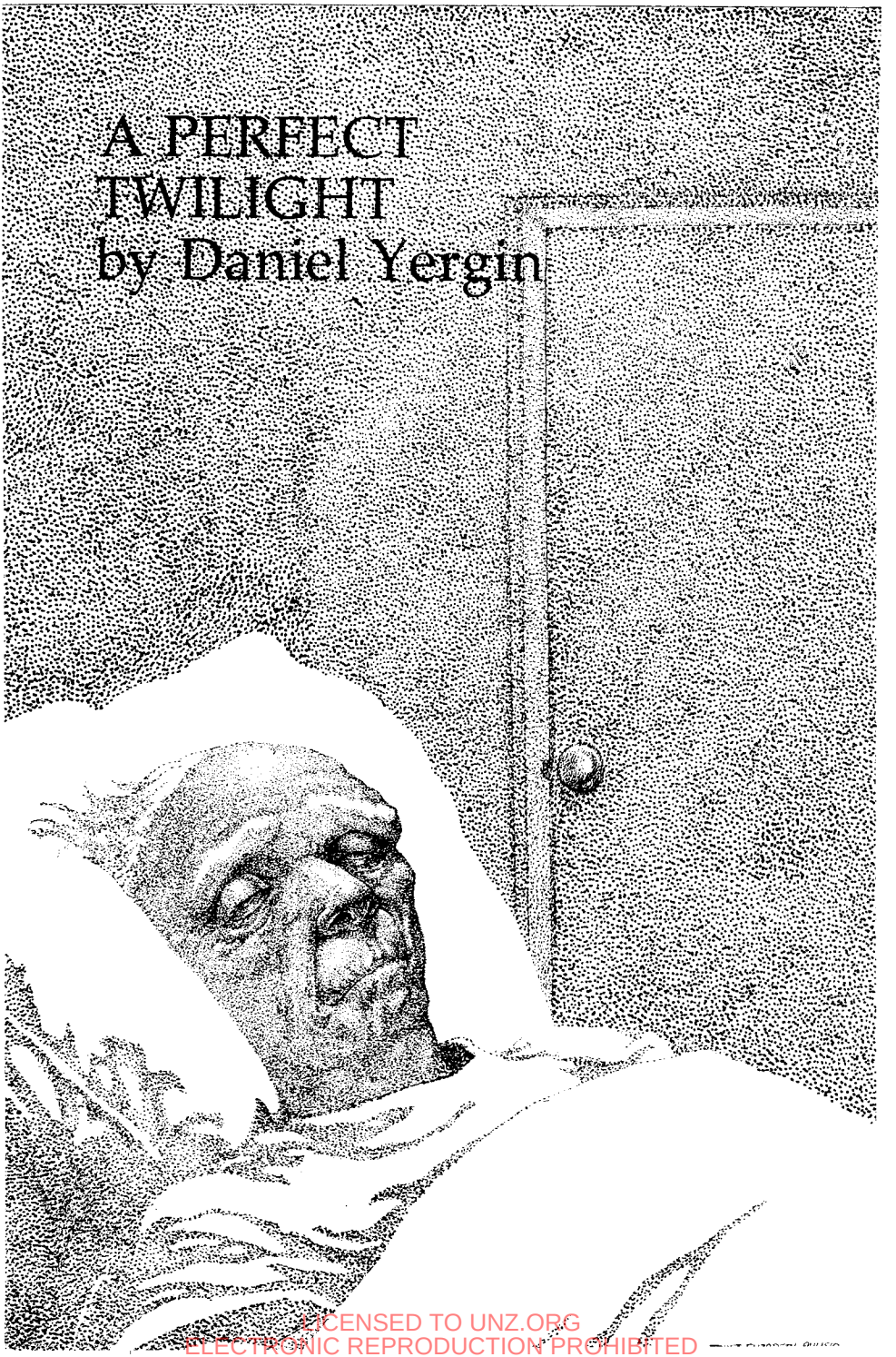
A PERFECT TWILIGHT

by Daniel Yergin



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A hint of mortality adds spice to the existence of an Immortal—unless. . .

HARRIS WAS UP and dressed by 7:30, for the drive would take eight hours each way. Once, leaving late, he had stayed over in a guest room at the Institute, but had lain awake, his mind racing, the entire night. So, by getting an early start, he would be back by one the next morning.

He walked into the bedroom to say good-bye to Martha. She was lying on her side, waiting, watching for him.

"You were quick this morning," she said. Her hip rustled under the sheet, inviting him back to bed. He had designed the room years before with no sharp corners so that—he had laughingly told her at the time—the curves of the bed chamber would complement her own. He sat down beside her, and ran his hand gently over her hip. An erotic pull tugged at him, but other, more immediate things occupied his mind. Her voice had been quizzical, and now her eyes asked the question they always asked—why was he going? Twice before, he had promised that he was going for the last time, and had believed it; yet when the time rolled around, he had gone again. Partly, it was an obligation; there were so few obligations now, and any one was to be cherished; but something else drew him as well, a pull that lay hidden and unseen, like a powerful tide beneath a placid surface. Martha no longer vocalized the question.

She rolled over on her back, with a little smile on her lips. She was attractive of course, and he was attracted, but he was also going. He kissed her briefly. They had shared many good years together, he thought, but perhaps it was time after all that they began to consider their separate ways.

"Have a good trip," she said with a little pout on her face, but then added, "I hope it's all right." This time her voice was gentle.

* * *

Harris slowed as he entered the gates and started up the curving lane. Past the pond, glimmering in the mid-afternoon sun, the grounds rolled in a broad expanse of lawn up to the old mansion house. So perfect a scene. Yet Harris felt cold. He had even shuddered, as he always did, the moment he passed through the massive stone pillars, with the discreet sign, "Institute for the Study of the Abnormal." The sight of the word 'Abnormal' brought home to him something he forgot for most of the time. For the abnormal in this immortal world was, simply, mortality.

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Many others forgot it altogether; it had been well over a century since death had touched their lives. But Harris, sometimes irritated, always obligated, drawn, came once a month to visit his one living relative, who was dying.

He parked the car in a gravel lot that was hidden by the bushes and quickly got out. He stopped at the edge of the lawn; the only sounds were a wind in the woods on the far side of the house, and his own breathing. So perfect, so peaceful. He was an intruder. His eyes moved over the entire scene, as if to make sure it was safe to pass. Suddenly, he caught sight of a figure in a far corner, on the other side of the pond; the figure was not very clear, but it seemed to be a gardener, wearing a blue cap, working with an old-fashioned scythe to level tall grass that grew near the pond. Never before had he seen another person here. The figure disappeared into the trees. Harris shivered again. He concentrated on walking, and made his way briskly across the lawn, up the white stone steps, into the lobby. Only inside the door did the visitor discover that the facade of the house was like a stagesetting, preserved from the early part of the twentieth century. Behind it stretched the Institute with its gleaming interior alloy walls, as reflective as mirrors, but in darker, more muted, more mysterious tones. As an architect, Harris was always annoyed by the design; he would have preferred to have part of the mansion's interior, which must have been magnificent in its own old-fashioned way, as a transition between the two centuries.

"Dr. Reiner," he said to the blonde-haired receptionist. She was new, but the receptionists often were, for people rotated in and out of such second-tier jobs every three months. While she phoned, he looked at her carefully. She was pretty, soft, almost pink, with a wide smile. He reminded himself to talk to her on the way out.

"He'll be here in five minutes. I hope you don't mind waiting."

"Not at all." He did not feel like chatting now, but afterwards, his obligation fulfilled, he would be back.

He sat down in one of the white plastic chairs, which instantly adapted itself to his contours, and stared at himself in the wall opposite. How long had he looked this way?—107, no, it was 108, or was it 110 years, or did it really matter? Of course, there were changes; two decades ago, he tired of the close-cropped hair style he had worn for so long, and had allowed his hair to grow out again. But that was cosmetic; there was no real change, only stasis, and he knew his image so well that he bored of looking. He let his hand drop onto the console next to him; the section of wall opposite him flashed into a screen. He flicked through fourteen channels until he came to a revival of a mus-

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ical he remembered from the 1990s, just before the Great Death. One of the songs came back into his head, "I'll Be Waiting," and he hummed it with the actor. He wondered with whom he had first seen the musical, but it was so long ago, so difficult to remember people he had known, those who had not survived. It was easier to remember the song. He turned off the console, shut his eyes, and hummed the song again.

"Aha, I wondered if you were still coming to us," said Dr. Reiner.

Harris stood as the angular doctor approached and they shook hands. The doctor's hand was boney. They started down the corridors. "That's always your opening line."

"And I always wonder if you're going to come to us."

"I do—every time."

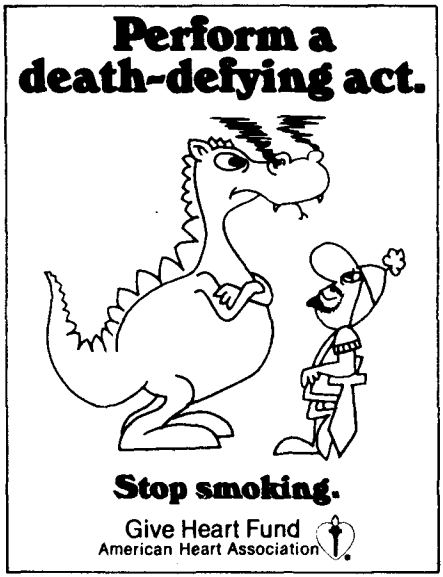
"That's true, but most people don't, they don't have any interest, they don't want to know, and so I start to assume that eventually nobody will come and how quiet it will be here, and then you and one or two others surprise me."

Harris noticed some strain in the doctor's manner. "How is he?"

"Weaker. Degeneration seems to be accelerating, and his systems are failing. Frankly, I don't think he can last much longer."

"How long?"

They had reached the room. The doctor paused, his hand on the handle of the unopened door, his eyes gray, neutral. "I can only give you an intuition. Three weeks—at most."



The words passed Harris by. He had heard them, but he could not extract the meaning. The doctor pushed open the door and gestured Harris in. "You'll have to excuse me. I have business. . . ." That too was a stock remark of the doctor, but now it was said with less politeness and more conviction.

"Of course," murmured Harris, but by then the door was already closed behind him.

Harris sat in the corner, underneath the wall console. Slowly, his eyes fixed on the old man, who slept, half-sitting in what might have been a bower of vines and

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branches, but these vines and branches were the wires and tubes that linked him to dials and regulators and fluids. The room smelled of antiseptic, stingingly so. This person was the closest genetically to him in the entire world; the difference between them was one of life and death, but it was such a small difference, an enzyme balance, that explained why Harris' face was only slightly lined, no more than it had been a century before, while that of the old man was as ravaged as a gully in a drought.

At last, after what seemed an hour to Harris but was in fact only ten minutes, the old man opened his eyes, and struggled for a moment to focus on Harris.

"Hello," said Harris.

"Hello," said the old man. His voice was parched, a croak, every word an effort. He managed to smile slightly in greeting. "You here long?"

"No, no, I just arrived."

They chatted now, with Harris doing most of the talking. He told the old man about the two houses he was designing for the parklands north of the urban hub, and then hurried on, in great detail, to his trip last weekend to the highlands in East Africa, and on to his plans for skiing next week in New Zealand.

"Do you still travel with that nice woman you told me about—"

"Martha. Yes."

"Good."

Harris' mind wandered for a moment to the growing distance he felt between Martha and himself, but he was not even so sure of that distance, and there would be so much time to decide. There was always so much time.

The old man tried to shift himself a little higher in the bed, but the artificial bower kept him from moving very far. Harris found it painful to watch so much effort for so little. There was a silence.

"You know," said the old man finally, "your world is a very leisured place." Harris did not reply, and the old man continued, struggling to get out his sentences. "I've had leisure too, leisure to lie here and think about myself. Sometimes I've thought it was very unfair. I'm here. Why? Why couldn't I devote my life to enjoying life like the rest of you? Why am I here with the others whose bodies wouldn't stop growing old?. . . . But I don't think it's unfair anymore. . . .I don't think it's important that I'm a freak."

Harris remembered the shock when, after thirty years of stasis, they had learned that the Treatment had failed with the old man, that his body had ceased regenerating, and again had begun to degenerate. What reassurance could he give now? What lies? "Don't give up hope now. There's still the possibility that it can be stopped. That's what they're working on here. That's why you're here."

The old man said nothing im-

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mediately, but instead seemed to be storing up another burst of energy. He shifted again. "Don't be kind to me," he said without any sharpness. "I know what's happening. I can feel it inside myself, I sometimes think I can hear it ticking. And—even if they could reverse it—I'm not sure anymore that I'd want to live forever."

Harris felt a clenching in his chest, like a panic. Now he comprehended fully what the doctor had said, the finality. And then the old man, as though deliberately reiterating what he knew what was on Harris' mind, said, "I'm different from you. I'm going to die. Soon." Evenly, he added, "And I'm not afraid. Not any longer." It sounded like a prayer.

A few minutes later Harris stood to leave. They had never talked like this before, and it was difficult to pick up the chatter. The old man seemed to have slipped away a bit; the exertion of talking had drained him. His eyes, however, were fastened on Harris, and the way he looked was eerie, as though from a great distance. The farewell was awkward and abrupt, but fortunately brief. Harris said he would see the old man again in a few weeks. Another lie.

Harris' legs were weak beneath him as he walked down the soft-lit corridor, and he sat down on a couch. A terror settled down with him, but the terror gave away to sadness. He cried, sobbing quietly. Then he caught sight of himself in the alloy wall. It was an image of himself that he could never remember having seen before. It was so unusual, so amusing, so much a novelty, that he stopped crying to watch, but of course the image had fled, and he was back to his normal self.

* * *

"He knows he's going to die," Harris said to Dr. Reiner. The two men were strolling, as had become customary after the visit, in the garden behind the mansion house. "He says he feels it within himself."

"I'm not surprised. A substantial part of him is already dead; it's only the machines that keep him alive."

Harris did not reply.

The doctor eyed him curiously. "You have no reaction?" There was a mocking edge to his voice.

"I don't know what to say," Harris shot back defensively. "What can I do?"

"It was not my intention to make you angry. I meant the question in a serious manner. My reactions are shaped, and limited, by my work, and I wonder about someone like you from the outside. . ."

Harris thought of the fleeting image of himself that he had caught in the mirror-wall. A strange sight. One rarely felt any peaks of emotion, especially of that kind. "I suppose I—we—aren't very good at

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facing death? We're out of practice."

"I'm not sure that man was ever any good, even before the Plague."

"But you, it doesn't seem to bother you."

Passing through a small wood, they had come out on a bluff, and now they sat down on a bench, facing out over the river. A flock of birds rose and then resettled in the forest across the river. "It's my work," Reiner said at last. He fingered the lapel of his white coat. "You see, I'm a doctor."

"And you chose it?" What made the dutiful part of his visits less dutiful for Harris was talking with Reiner, prickly, puzzling, intelligent, sardonic—deliberately choosing to live on the edge of two worlds. But Harris had always before felt it would be an intrusion to ask him why he sought this memento mori in a world in which it was unnecessary, and even now, Harris' question was ill-formed.

"I'm fascinated." The doctor smiled thinly. He had admitted his perverse fetishism, and then, when he became aware of Harris' lack of explicit reaction, he chuckled dryly and asked, "And why do you think you come here?"

"He's my relative, my only living relative, and he's dying."

"Oh, come now, that could only be part. You're here because you too—are fascinated."

"You make it sound—"

"Again, you misunderstand me. I'm not saying there's anything sick about it on your part, just that you're drawn. You are, you know."

Irritated at the doctor's arrogance, his diagnosis, Harry was in no hurry to respond. At last, he nodded; the doctor, he reluctantly had to admit, had touched a truth, the pull trying to tug him from one world back to another, the force that Martha could never see.

"I think many of us take immortality so much for granted," the doctor went on, "that we forget what a miracle, what a gift, it is. And that it came to us out of death. So to see death is to see our rebirth. If the Great Plague had not killed so many, billions of people, then Von Hoffmann and the other Researchers would have no setting, no reason, to figure out why twenty percent did survive, and then they would never have discovered—"

The doctor abruptly stopped. Harris thought he was collecting his thoughts, but then he realized that the doctor was half-turned on the bench, listening. Harris heard it too. A rustling, a whipping of leaves and branches in the woods. Then a shriek, and another.

They moved quickly down a path that ran off to the side. The shrieks grew louder. In the center of a small clearing, a man stood. He was whirling a scythe at shoulder level in a circle around him, clipping trees and branches, alternately making that shriek and moaning as he did so, as though in some pagan

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ritual. He wore a blue cap. This was the figure, Harris realized, that he had seen gardening when he had come into the Institute. The man's narrow face was contorted.

The doctor stepped into the clearing, just out of range of the instrument. "You must stop this at once, or you will injure yourself."

The man did stop, froze, with the scythe held out from him like a lance, his eyes widening as he looked at the doctor. "You. You're here. You're watching me, you're always watching me, following me, why won't you let me be!" The doctor, in his eyes, seemed to be an apparition, a tormentor.

"You must put that down. At once!" commanded the doctor.

The man neither set it down nor spoke. Instead he began to advance slowly on the doctor, his face drawn tight in its strange emotions. Reiner lost some of his authority, his self-confidence. "I told you to put it down!" He began to back away, in a semi-circular path.

"No, no, no," the man repeated, approaching. As in a dance, the doctor retreated further.

"Put it down for God's sake!"

"No—no—no."

"Aaahhh!" The doctor tumbled back, over a root, onto the ground.

Now the man loomed above the doctor, raising the scythe over his own head. Now it was Reiner's turn to freeze, where he had fallen.

Harris leaped. As he did, the man turned, dropping the scythe. There

MOVING?

Not very surprisingly, if you are a *Galaxy* subscriber chances are you tend to move around a lot; seeing new places, doing new things, living in new homes. This is just fine, of course, but from the rather specialized point of view of our Subscription Department it does present a problem.

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Thank you!

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was surprise on his face, but at the moment their glance met, Harris saw something else in his eyes.

The other man was strong, but Harris had the advantage, having caught him from the side, and Harris forced him to the ground, onto his belly, and pinned him. Reiner scrambled to his feet, and then simply stood there, watching, as though he were critically observing a scene acted out for his benefit.

"Reiner, don't let it lie there," Harris called out, while the man struggled to get free.

"Yes," said Reiner, almost absent-mindedly, and he picked it up. He shook his head once, and then reached into his pocket for a radio, and whispered a few words into it. Harris no longer had any difficulty holding the man to the ground, for the man's strength seemed to have gone out of him, and his muscles were flaccid. Within minutes, three other men—one of them Harris recognized as another research doctor—appeared, gave the man an injection, and carried him off.

The doctor stood silently. He let the scythe drop to the ground, and then brushed himself off with meticulous care, as though to recover his dignity. "Thank you." But his face was still very pale.

"Who was that?"

A new admission." The phrase sounded odd to Harris, but then he thought of the man's face, which he had seen only in the first moment of the grapple, pinched and drawn. He also recalled the look in the eyes.

"He in fact is very healthy," continued Reiner, "and working in the garden and woods seemed a sound activity. His aging has only slightly advanced."

"Judging by the way he went after you, perhaps he ought not to continue his gardening."

"I'm quite convinced that I was only a convenient target for his anger."

"Anger at what?"

"Oh, I would hazard a guess, and say himself. Come, let's go back."

"Do you get many new admissions?" asked Harris. A natural question, yet one that had never occurred to him before.

The doctor rubbed the side of his face. He did not answer immediately. "Before—we were talking about the fascination. There's another reason, a very practical reason, for my interest—my fascination. I am coming to the conclusion, one that I always feared, that the gift of immortality is, strictly speaking, limited."

Harris sucked in a breath.

"You see," went on Reiner, "in the last eighteen months we've had over sixty new admissions—in no way numerically significant, not even in terms of error but yet it is interesting that, after a century of statis, the degeneration begins again for no apparent reason. Of course, I'm not positive, but I think it is probably

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impossible to permanently retard the Hayflick Effect. You know, Von Hoffmann himself was never sure that the regeneration was permanent, but the irony was that he himself had been touched by the Plague and died before he could finish his work. And it seemed—impolite for anyone else to question his wonderful gift. I like to think of myself as his heir. When he was dying, he said he regretted that he would not be able to see the new future." The doctor's voice was little more than a whisper. "But, I fear, the new future is not as different as we thought from the old."

Harris felt dizzy and confused from what the doctor was saying, but some calm returned when they came out from the woods at a corner of the broad lawn in front of the mansion. Reiner stopped and gripped Harris' shoulder tightly, pinching it. The hand was bony and cold. "I would not have told you this, except for what happened. Please, you must keep this a secret. We can't have it known—it would threaten everything, everybody, and we don't know for sure. There is still hope. . . ."

Hope. That was what Harris had offered the old man. He looked across the lawn to the beautiful mansion house, standing as a fortress against time in the perfect twilight. That was what life itself had become, a permanent perfect twilight. But now, he learned, night still waited.

"Yes," he replied to the doctor as though he had not heard what the doctor had said.

Reiner was clearly unhappy with this evasive reply.

* * *

Harris pushed open the door. He had come back again, to say goodbye, but the old man was asleep. Harris scanned the room quickly, to fix everything in memory, including, finally, the figure in the bed, for this would be his last visit. He understood now what fascination had drawn him, but with his new knowledge, he no longer felt the pull. It was no longer necessary to come, to see, to remind himself. And the old man's time was short.

At the door Harris turned to find the old man's eyes on him again. And Harris saw it again. The distance in the eyes. Harris recognized what he had glimpsed in the eyes of the man in the woods. A knowledge.

"Good-bye again," said Harris softly.

The head moved slightly in a nod, and then the eyes shut again.

Reiner was waiting, scowling almost menacingly, in the corridor. What point would there be, what would be accomplished? "Of course," said Harris firmly. "I'll keep your secret."

The doctor's dignity did not permit him to say thank you a second time, and so he simply grinned pleasantly, his scowl gone. They shook hands.

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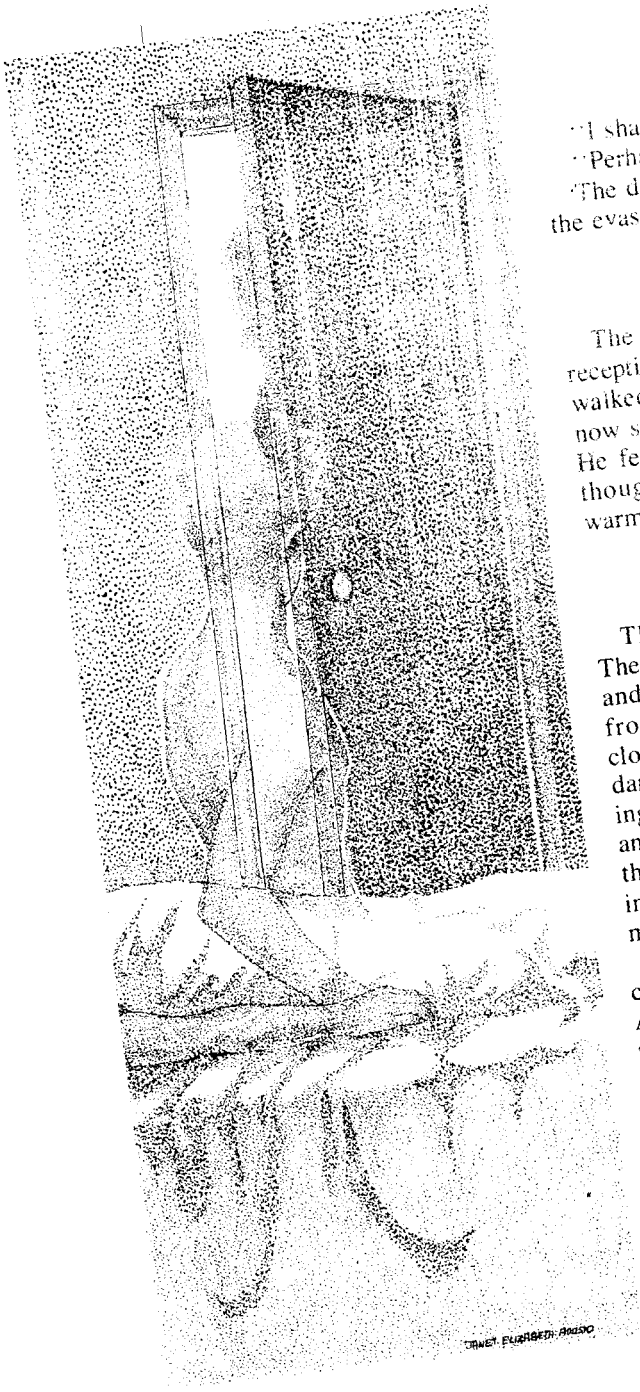

"I shall see you again."

"Perhaps," Harris replied.

The doctor was again bothered by the evasiveness in Harris' reply.

* * *

The blonde woman was still at reception, still alluring, but Harris walked quickly by. Deep shadows now stretched across the front lawn. He felt an urgency to be home. He thought of Martha that morning, warm in bed. Martha.

* * *

The beacon buzzed in the car. The highway was coming to an end, and Harris would have to switch from auto-glide to manual. The clock said 00:25, and the night was dark and smooth. He had been dozing, but restlessly, conjuring faces and eyes—the doctor, the man with the scythe, his own crying reflection in the corridor. And that of the old man.

The old man had said that he could sense the death inside him. And now, as Harris rode through the night, he felt somewhere deep within himself an ache, a groan, and he wondered if that was how it began, with a small but terrifying reminder that mortality still lurked like a criminal in his bones. And that, in turn, made him think how odd it was that this person he called the old man should, in piercing fact, be his son. ★

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DIRECTIONS

Dear Mr. Baen:

As editor of the magazine *Galaxy*, I believe you can be of help. Would you agree with the following statement?

TRAVEL TO THE STARS IS NOT ONLY PRACTICAL, IT IS THE NORMAL COURSE OF EVENTS FOR INTELLIGENT BEINGS. It is generally agreed that travel to the stars is possible, but is it necessarily practical? (By practical I mean that manned voyages to the nearest 10,000 stars would take no longer than, say, a few months.) According to the present view of physics (the Special Theory of Relativity), travel at speeds greater than 186,000 mi/sec relative to the earth is impossible. Because of the great distances to these 10,000 stars, interstellar space travel would appear to be impractical—unless, of course, we find a way to exceed this speed. (If you think this impossible, then there is no need to read any farther, for it is assumed from here-on-out that such speeds are not only possible, they will someday become quite practical.)

According to the present interpretation of relativity, the speed of light is the upper limit to the speed of an object, including rockets and spaceships. According to a new interpretation of the theory of relativity that I have recently developed, there is no upper limit to the speed that an object can attain. In fact, in my new interpretation of relativity I can

a) account for the measured constant velocity of light without having to modify the normal concepts of time and space,
b) furnish an explanation of all known electromagnetic phenomena, and
c) *allow speeds greater than 186,000 mi/sec relative to the earth!*

If this new interpretation of relativity is correct, it has significant implications as to whether travel to the stars is practical, and as to what the future of industrial man could be.

I have presented this theory before a local student physics society (8 physics students and 2 college physics professors), and, after considerable discussion, they were not able to find any errors in the reasoning behind the theory or in the resulting equations. (The equations involve only algebra.)

The question now arises: do you know of anyone knowledgeable in physics who would be interested in a new interpretation of relativity which accounts for all known electromagnetic phenomena and which allows for interstellar space travel, possibly within a hundred years? Would *you* be interested?

I am enclosing a copy of my resume. You can see from my background that I am not entirely ignorant of physics. I would also like to add that I think enough of my new interpretation of relativity to realize that its implications for the future of industrial man could be extremely important—important enough that I felt compelled to return to school to find out the nature of this "industrial man".

I would appreciate your help in this matter. Looking forward to hearing from you, I am

Don R. Beer, Ph.D.
2015 1/2 9th St.,
Lubbock, Texas 79401

Feedback, anyone?

Hi,

Just received my copy of April issue today. Thanks to Spider Robinson for his comments on Joan Vinge. She is a good writer; every good one needs the encouragement, for our sake as well as their own.

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The main reason that I'm writing this though, is because of the circulation statement on page 112. There MUST be something that we fans can do to increase the subscriptions of the magazine and get it out of the hands of the "distributors". Perhaps we can use subscriptions for our birthday, and Christmas lists as much as possible. If each of us subscribed for, or encouraged one other to subscribe, it would double the paid-for copies. 40,000 returns from 93,800 printed is a horrible percentage of waste. If we fans get behind this magazine we can save it. It will be for ourselves and new authors that we will be saving it.

Sorry about the messy typing. If I wait to make it correct, it will never get into the mail.

Keep up the good work,
Marianne Turlington

P.O. Box 23414
San Diego, CA 92123

Actually, our percentage of returns is fairly low, as such things go–but by all means subscribe!

Dear Mr. Baen,

Your April '77 issue touched on a subject that has been foremost on my mind for a long time now.

This subject is apathy among sf fans. Perhaps the most pressing problem faced by the science fiction community is the one we create ourselves, by sitting around on our hands. I have always been rather vocal concerning subjects like money for the space program and genetic research, and I seldom or never hesitate to write my elected officials and tell them in detail what I think and why. As president of a modest-but-ambitious science fiction society, ORION, I have urged (and threatened, and commanded) members to do likewise.

The *anti*-space program factions are *very* vocal. When have you seen a political cartoon that presented a *pro*-recombinant genetic research stance? These are the harbingers of public sympathy by which Congress and the President—and the public—gauge the tide of voter opinion! The anti-science-and-technology cultists are a loud and very visible group. Congressmen see and hear them. They listen to them. And then they cut the space budget, limit nuclear power plants, muzzle genetic research. *WAKE UP PEOPLE!* All that is necessary for evil to triumph is for good men to do nothing, to paraphrase somebody.

Now, if I may change subjects abruptly, I would also like to voice interest in the matter of why there is such a lopsided ratio of female-to-male sf writers. *I* certainly don't know why this state of affairs exists. I do know, from trying to recruit them for ORION and from a radio talk-show experience, that female sf *readers* are few and far between, and it is immediately obvious that to have female sf writers you must first have female sf readers. What do you ladies have to say about it?

Finally, I personally would like to see the Alter-ego business dropped completely. There are more straightforward ways to address the things Geis has to say. The Alter angle pads the magazine with ugly literary fat. Sorry, Alter, but I cast my belated vote to give you the ax.

Sincerely,
Larry Cooper
President, ORION

1003 South Third
Rogers, AR 72756

Certainly those who feel strongly should write their congressmen–and their President, too. As for the male/female story ratio, these days it is fairly proportional to the male/female author ratio.

Dear Mr. Baen,

Before I start to complain, let me say that you produce an excellent magazine. Now let me get to the real point of my letter—Dhalgren.

It seems that of late there is a large group of people who get their thrills from saying how bad the novel really is. Well, I must say that although they are entitled to their own opinion, someone should be able to give equal time to the other point of view.

I thoroughly enjoyed reading Dhalgren.

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Enough so that I read it twice (completely yet!) and was never bored long enough to put the book down. Fortunately, the first time I read it was just after it appeared on the stands, and before the hassle started, so I wasn't aware that I was reading trash.

"Dhalgren has no plot!" people say. Well, I thought it had a very good plot, granted that it was stretched out more than the normal, run-of-the-mill novel. Is that really bad? I never heard anyone complain about Steinbeck's The Grapes of Wrath having no plot. Or even The Fountainhead by Ayn Rand. Dhalgren has more plot than either of these.

The point is that plot alone does not make a novel. (A short story maybe . . .) Characterization is at least as important, perhaps moreso. Setting? Ditto.

Obviously, a lot of people enjoyed Dhalgren. The sales were (I understand) excellent, so someone must be reading it. I don't mind people bitching when they have a valid complaint, but far too many people have had their negative opinions of Dhalgren published in virtually every SF publication. Somebody must stand up and say, "Thank you Mr. Delany."

Now that I have that off of my chest, I would like to say that I hope you can convince John Varley to write some more stories in his future history for your magazine. He is quite the excellent writer. He must already stand as one of the better writers in the field.

Thank you for letting me express my opinions.

Yours faithfully,
John R. Little

458 Adelaide St.
London, Ontario
Canada N6B 3H9

Good, bad or indifferent, anything that attracts as much attention as Dhalgren has is almost by definition Significant.

Dear Mr. Baen:

After not having read an issue of GALAXY for awhile, I picked up a copy of the March issue and it's the best damn magazine I've ever seen. I wonder what's been going on in science fiction all this time? The stories have improved and the position of the *genre* is a markedly better one.

Of course, I could ignore the rest of the issue, concentrating instead on Frederick Pohl's story. Is each one of his stories *absolutely* individual? Except for what the reader knows he has in his hand when he reads a Pohl story, there's no way to tell that they're all written by the same author. This is as much of a trail-blazer as Edson McCann's story way back in the '50's. I'm going to have to slip the first two installments out of somebody's collection.

And THEY WHO GO DOWN TO THE SEA made it an issue instead of a story. I'll be glad to pick up the next issue when it hits the stands. Who is Spider Robinson? Not one of a series in a phylum, I hope? At any rate, he has quite a novelty effect, and they tell me he maintains it in most stories. Will he have an anthology out? He seems like a can't-miss author.

Thanks for bringing me back to the sf field.

Best,
John Thiel

Who is Spider Robinson? Er. . .well. . .it's hard to say. I can only suggest that you keep reading Galaxy *and form your own opinion!*

Dear Jim,

At last! The March Galaxy finally arrived on the newsstand and I could finally finish Fred Pohl's 'Gateway' serial! It must be five months since it started!

Unfortunately, 'Gateway' fizzled a little in the last episode; I only rated it A− instead of A+ for the first two-thirds, which had kept me re-reading it two or three times for clues. Who were the Heechee? How did the hero manage to get rich on the last trip while losing his girlfriend's life? What secret did the computer-psychiatrist hold?

Alas, the ending was a damp squib. I'd deduced, on the basis of the first episode, that Bob Broadhead got rich by discovering the Heechee home planet, thus answering the many puzzling questions about their dead civilization.

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Still, maybe Fred Pohl is planning to reveal all this in 'Son of Gateway,' after finding he had far too much Heechee-background to cram into just one novel.

Be that as it may, I still think that the ending was dubious. I don't see why they needed a whole ten people on such a risky trip, or why they'd pay an $18,500,000 bonus for it. And, quite frankly, I think what really happened was that the other nine deliberately planned to leave Broadhead behind on the doomed spaceship because he was such a rotten s.o.b. (and because it'd be nice to have at least one representative of humanity return if things miscarried), and they deliberately disconnected his ship's firing button so it wouldn't have worked anyway, so that the only reason he got back alive was get into print they're several months out of date!

Your truly,
Glenn T. Wilson.

722 Montclair
Edwardsville, IL. 62025

Why send that many people: because life is cheap, and that's how many fit! As for the ending, the computer (speaking in its best hypothetical sense, of course) was saying that it is better to be even Robinette Broadhead than not to be at all. A switcheroo ending perhaps; but a profound one.

Messrs. Baen and Pournelle,

As I write this, I have just finished watching the N.B.C. special on radioactive waste. No doubt a lot of other people were watching it as well. The report was presented as a good horror story with all the trappings of journalism, and many of the people watching it will no doubt be running scared in the near future. The only positive things I saw in the whole report were the advertisements.

The truth of the matter is, I believe, in nuclear power, and *I'm* frightened by the report.

As an admittedly informed optimist, what does Dr. Pournelle have to say about radioactive waste material, aside from depositing them in the Earth-Moon Trojan points?

Robert Sombrio

1430 Clay St. Apt. 6
San Francisco, California 94109

See his column in the Sept. '76 issue of Galaxy, *"Fusion Without Exlax."*

Dear Jim,

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Yours appreciatively,
David Wingrove.

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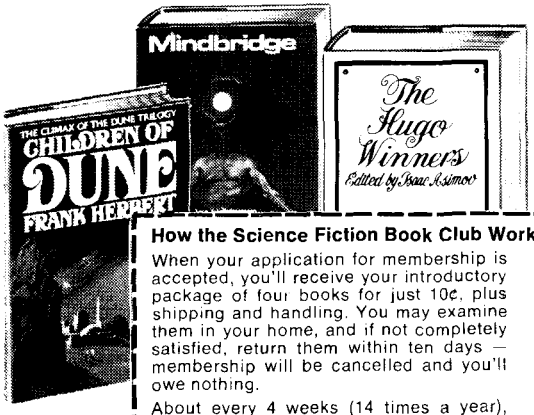

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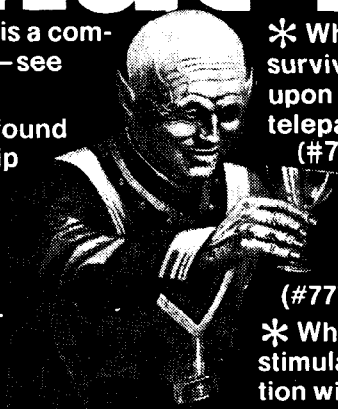

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